



Methods of Filling Teeth with Gold Inlays.*

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Measurements. The standard used will be the micrometer, as the materials for the matrices are too thin to admit of the use of standard wire gauges. If an accurate micrometer be used to measure the gold and the material be rolled in a good mill, the manipulation of the matrix will be very much simplified, as uneven gold is very difficult to manage.

After various experiments it was found that 24 karat .003 gold is best adapted for all the large matrices. .002 may be used for the smaller ones. This thickness of gold will stand the necessary swaging and burnishing and will have enough temper after manipulation to retain its shape while being removed from the cavity. Thinner gold tears easily and is not sufficiently rigid save in exceptional cases. Thicker gold is too rigid and cannot be properly burnished to the margins, and where a sharp turn is required it is more difficult to manipulate.

The matrix gold should be rolled in strips 1 in. wide and then cut into squares of same width one inch long, as large pieces are clumsy to handle.

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**Method
of Annealing
Matrix Gold**

The squares should remain unannealed until required. The reason for this is, that if the large squares are annealed they are liable to become bent or wrinkled during the process of cutting off the smaller pieces, thus causing the large piece to become unfit for use, as each wrinkle will create some temper or spring along the line of the bend, which reannealing will not entirely remove. The annealing of the matrix is best accomplished by grasping the small piece of gold at one corner with a pair of old plugging pliers and holding it in a bunsen or alcohol flame until it nears the melting point, then plunge into cold water. This in my experience gives a very soft pliable matrix metal.

Some operators prefer to anneal their gold by placing it between two sheets of mica and heating the gold to redness, allowing it to cool gradually. This apparently makes the gold a little tougher.

**Manipulation
of the Matrix.** It is not necessary repeatedly to reanneal the matrix during the process of adapting it to the cavity. Some operators, however, do this, claiming greater ease in manipulation. I have not found this to be true. An objection to reannealing the matrix is that as the gold is manipulated and burnished it becomes very thin, and is liable during the heating process to melt in the thin places, thus spoiling the matrix.

The piece of matrix metal for a given cavity should be cut large enough to lap all its walls, and it is better to have the matrix metal a great deal larger than the cavity rather than the least bit too small. Matrices should always be thickened with 22 karat solder, as thickening stiffens the matrix and prevents change of form during removal from mouth. Care should be taken to prevent the solder from running over the margins and should be reburnished before they are removed from the mouth for building up the necessary contour.

The solder used to make the restoration should be of a lower karat than that used for the thickening, for if the solder used for making the inlay and thickening the matrix be of the same karat it is liable to melt during the process of filling the matrix and the thin gold used for the matrix would become absorbed by the larger mass, so that failure would be the inevitable result.

If tears occur during the process of making the matrix these may be repaired by covering the holes with gold pellets, forcing them well down into the matrix before thickening. The solder used for thickening is absorbed by these pellets, thus filling up the holes. If, however, the tear occurs on the margin it is best to abandon the matrix and make a new

one. So far I have found no successful way of repairing tears that occur along the margins.

General Rules for Cavity Preparation.

The cavity preparation for gold inlays differs from that used for gold fillings. These cavities must contain no undercuts and should be so shaped that when the matrix is formed it can be withdrawn from the cavity easily and without changing its shape. This is readily accomplished in the ordinary approximo-occlusal cavities in the molars and bicuspids, but may be quite difficult in the compound approximo-occlusal cavities that do not include the restoration of the cusps. A few general rules will be laid down.

1st, The cavity must be formed with enough *draw* to allow an easy removal of the matrix. No undercuts are admissible.

2d, Cavities should have a flat floor or one nearly so; i.e., the floor should be at right angles with the axial wall.

3d, The cavity should be so formed that when the inlay is in place without the cement, it cannot be dislodged by direct pressure on the morsal surface. This is accomplished in approximo-occlusal cavities by making a large dovetail on the morsal surface. This is a system used by nearly all the modern cohesive gold operators.

4th, Cavity margins should be carefully polished before attempting to make a matrix. This should be done with cuttlefish disks, because if any sharp corners be left, the gold is liable to be torn during the process of making the matrix.

5th, Cavities in bicuspids and molars should be extended well buccolingually.

6th, Do not attempt to inlay a cavity in the approximal surface of bicuspids or molars where no morsal anchorage is obtained.

7th, Very deep seated cavities should be partially filled with cement before making the matrix, because if matrices are attempted for these cavities without previously partially filling the cement, tearing of the matrices is almost sure to occur to such an extent as to ruin it.

There is no step in the construction of an inlay

Flowing Solder. that requires more care than flowing the solder, and when the blow-pipe is understood and used correctly there is little danger of melting the matrix.

I prefer to cut the solder in large pieces, using fresh, creamed borax formed from the lump as a flux.

Before heating the investment preparatory to flowing the solder, flux the matrix and place a few small pieces of carefully fluxed solder well down in the bottom of the invested matrix. Add larger pieces of solder,



filling the matrix and heaping it up so that when it flows it will nearly fill the inlay.

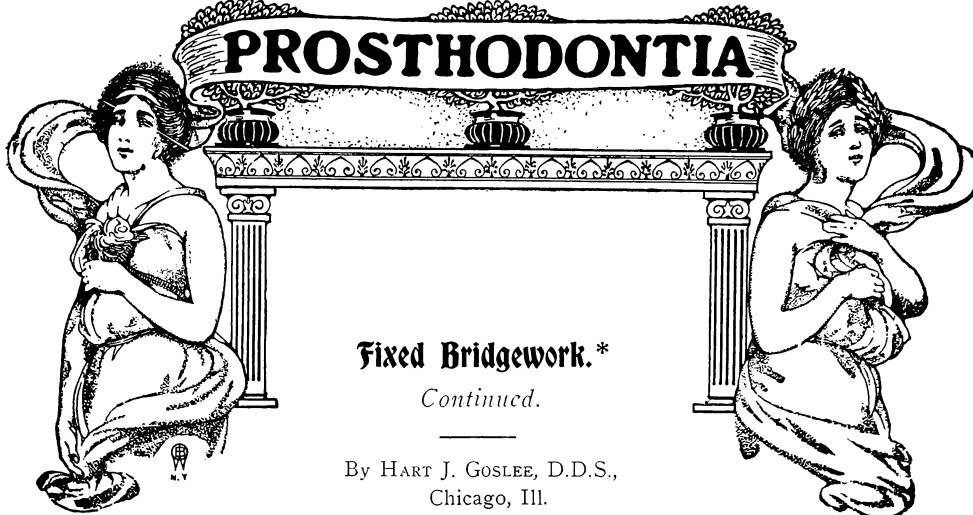
Heat the investment from the bottom using a bunsen burner covered by a heavy wire net to support the piece. The investment should be nearly hot enough to flow the solder before the blow-pipe flame is applied. Always use a broad brush flame so as to evenly distribute the heat. If you control the flame to a needle point, and apply it directly to the solder you are very apt to melt the matrix and ruin the inlay. The idea is practically to cast the inlay.

After the first solder is flowed, add more until you have filled it sufficiently so as to give you your desired contour. When cool enough for the solder to harden thoroughly, plunge into cold water, as this facilitates the removal of the investment. Wash off the remaining parts of the investment and pickle in an acid bath.

The approximal surfaces are now finished and polished, adjusting the knuckle to meet the case.

The gingival margin of the inlay is trimmed so as to leave only a very slight thin overlap, and this overlap is polished away to the margin with strips, after the inlay has been set.





PROSTHODONTIA

Fixed Bridgework.*

Continued.

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Detachable and Replaceable Teeth.

Among the diversified methods which are now in use, and which are regarded as being practicable when their application is indicated, are those wherein the various forms of *detachable* and *replacable* teeth or facings are used.

The principles involved in this class of work

Advantages.

possess at least *three* important advantages. First, the cosmetic possibilities of the finished structure are enhanced by avoiding the display of gold incisal edges and occlusal surfaces. Second, the absence of any need for subjecting the porcelain teeth to the heat of soldering; and, third, the increased opportunities for effecting repair in the event of subsequent accident.

The first advantage is readily apparent because any method by which the conspicuous display of gold may be avoided has always been welcomed by the aesthetic and progressive prosthodontist, to whom the usual form of dummy made by the joining of porcelain facing and gold cusps has always been objectionable. Such operators have for years been awaiting the introduction of some form of porcelain tooth, more like the old "tube" tooth, particularly for bicuspids and molars, which would present an occlusal surface of porcelain instead of gold, and which would be of more or less universal application.

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As applied to the second advantage, since so many who have never become skilled in soldering, proceed with timidity toward the assemblage of extensive pieces of which porcelain facings form a part, it is also obvious that any method by which this apparently intuitive dread may be eliminated will be equally appreciated.

Whilst there is absolutely no danger of, nor excuse for, fracturing porcelain facings in their final assemblage if the proper precautions, as previously emphasized, are observed, still there is some danger of discoloration, and therefore there can be no possible objection to the previous assemblage of the metal parts only, and the subsequent attachment of the porcelain to them, provided that the retention of the latter may be secured in a manner which insures *at least* equal stability and permanency.

In this connection it is claimed by the advocates of this method of construction that if the base is properly adapted and sufficiently strengthened by reinforcement, the porcelain teeth or facings attached thereto with *cement* are far less liable to fracture under the stress of mastication than are those which are held so much more rigidly by solder. For the reason that the presence of a layer of *cement* between the metal and the porcelain must diminish the force of impact, and thus act as a slightly yielding medium, the claim seems logical.

The third advantage—that of the ease with which repair may be effected—is an equally important consideration. Any method which will facilitate and expedite the repair of dental bridges will materially lessen the burdens of the operator who attempts their construction, for accidents will happen, and to fixed appliances perhaps oftener than to any other form of prosthetic work.

In this connection, when this type is employed it is well to keep a record of the number, mould and shade of each tooth used in each case, for the reason that in the event of accident to any tooth the replacement is thereby made comparatively easy by the facility with which the proper selection be made, after which grinding to fit and mounting with cement will constitute the requirements, and may be effected without delay.

Davis Crowns.

The employment of Davis Crowns, which are well adapted to the construction of bridges of this type, offers a means of obtaining splendid results from the combined viewpoints of beauty, strength and hygienic properties.

Indications. Their use is indicated in the construction of both anterior and posterior bridges, and for abutments as well as dummies, in that class of cases where the

length of the crowns of the remaining natural teeth, and the amount of absorption where teeth are missing, will admit of their application without excessive grinding.

Contraindications. They would be contraindicated, however, in cases where but little absorption has taken place; where the crowns of the remaining natural teeth are very short, or where the "bite" is extremely close; and also in cases of excessive absorption where the neck of the crown could not be placed in contact with the ridge.

Application to Anterior Bridges. As applied to the construction of anterior bridges the roots should be prepared in the prescribed manner except that they should be cut even with, or slightly beneath, the gum at all points, and the caps made by the usual method, the band being very narrow and of 22K. gold, or platinum, 29 or 30 ga., and the floor from 30 to 32 ga. When the



Fig. 310.

caps have been thus made and properly adjusted to the roots the canals should be prepared, the floors perforated, and the dowels fitted and then soldered. The apical end of the dowel made expressly for these crowns, or one of iridio-platinum, may be used; but all surplus should be trimmed away even with the floor after soldering.

Construction of Abutment Pieces. After thus completing the caps (Fig. 310 A) they should be placed in position on the roots and a bite in wax and impression in plaster taken. When the latter has been prepared for separating, the interior of the caps should be filled with a thin film of wax, to admit of easy removal from the model, and the model then obtained and mounted upon the articulator with the "bite."

Suitable crowns should now be selected and ground to the proper adaptation in so far as the required adjustment is concerned. After this it is necessary to grind away from the *base* enough to admit of sufficient thickness of gold to reinforce the cap and adequately support the crown, and then slightly hollow out the approximal surface presenting toward

the dummies so as to accommodate, and give finishing line for, an extension of the backing toward the contact point. (Fig. 310 B.) This affords a greater soldering surface and admits of filling in the space between the teeth in assembling, thus insuring a greater degree of strength and a much cleaner fixture when completed.

When the crowns are thus prepared, backings of 32 ga. 22 K. gold should be closely adapted to the base and approximal sides, which may be done best by swaging directly to the tooth itself. To accomplish this fill one of the rings of any cylinder and soft rubber plunger swaging device with softened *dental lac*, or modeling compound, and force the crown down in it as illustrated in Fig. 311 A. When this is hard, trim to expose the surfaces previously ground; adjust the dowel made for this type of

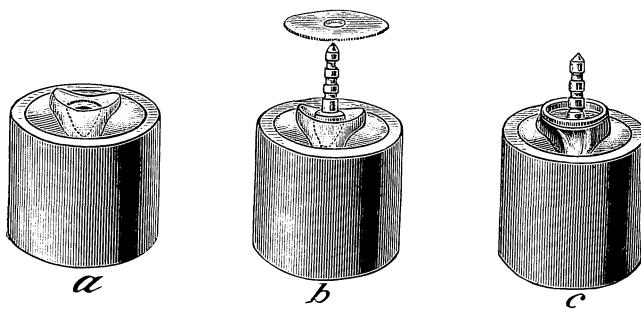


Fig. 311.

crown with the solder resting firmly in place in the crown; perforate the disc of gold and place it over the dowel (Fig. 311 B); adjust to cylinder, insert soft vulcanite plunger and swage (Fig. 311 C).

After swaging, trim away surplus gold to proper outline, burnish down close to crown, and then solder the dowel to the backing. The proper relation will be sustained by the fit of the backing to the shoulder of the dowel, but in uniting them only a small amount of solder should be used, and care must be exercised to prevent it from flowing beyond the shoulder on that side of the backing which is adapted to the crown. This may be avoided by previously coating the surface mentioned with a thin solution of whiting.

The surplus *apical* end of this dowel, which is now not needed, should be cut down close to the surface of the backing, and the latter then placed in position on the crown, and both adjusted to proper relation with the cap on the model.

This relation between the backing and the cap should now be sustained with hard wax, and the whole then gently removed from the model,

and the joint between the two well filled with wax. The crown may now be carefully detached and the cap and backing invested, and this subsequently trimmed in such manner as to expose the entire joint (Fig. 312). If the interior of both pieces are well filled with investment material, and the investment then trimmed as indicated, no difficulty will be experienced in completely filling the joint with at least 20 K. solder,

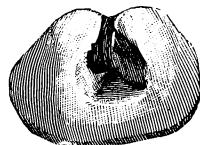


Fig. 312.

thus completing the construction of the abutment pieces (Fig. 313). If the cap is constructed entirely of platinum as a means of precluding the possibility of fusing it in soldering, the band may be entirely covered with solder in uniting the pieces, if care is exercised to have it freely exposed, clean, and properly fluxed.

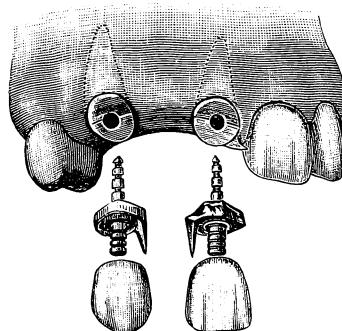


Fig. 313.

**Construction
of Dummies.**

When the abutment pieces are thus finished they, with the crowns in place, should be adjusted to the model and the dummies then prepared. Except that the base of the crown should be ground to fit the model as closely as possible, and that both approximal sides should be hollowed out, the details incident to obtaining the adaptation of the backing, and the adjustment of the lower portion of the dowel to it, for dummies, are identical with the procedure described for the abutment pieces.

Assembling.

To facilitate the final assemblage on the model, cover it between the abutment crowns with tin foil and then sustain the relation of the parts with hard

wax, after which the porcelain crowns may be removed and the metal parts then easily detached from the model and invested as indicated in Fig. 314. In soldering, care should be exercised to completely fill the joints between the parts, and to so reinforce the base which supports the dummies as to insure strength. When the soldering has been completed the case should be first properly finished and polished, and the crowns then mounted with cement (Fig. 315).

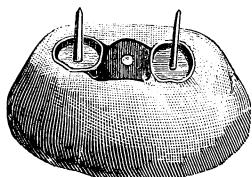


Fig. 314.

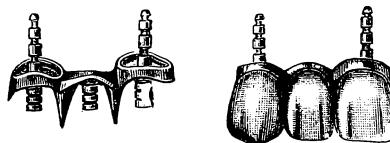


Fig. 315.

Application to Posterior Bridges. In a somewhat modified and much more simplified form the same principles are applicable to the construction of bridges involving the posterior teeth in which application the process is known as the Davis-Townsend method.



Fig. 316.

Davis-Townsend Method. This method differs from the former only in that *caps* or *boxes* of gold about 30 ga., which accurately fits the base of the bicuspid and molar crowns are provided by the manufacturer, or may be made (Fig. 316), and that they are designed to be used, mainly, as dummies, in conjunction with any type of crown or abutment piece.

In the construction of bridges by this method the abutment pieces should be completed first, and the bite and impression taken with them in position. When the model has been obtained and mounted on the articulator these gold caps should first be selected, and afterward the crowns which will fit into them.

The caps and crowns *together* should then be ground to the required and proper adaptation to each other, to the model and to the occlusion,

after which the gold should be carefully burnished around the edges of each separate crown. They should then be properly assembled on the models and the relation of the gold caps securely sustained with hard wax. The crowns should then be removed and the spaces between the caps filled with wax, when the piece may be carefully detached, invested and soldered, following the same detail recommended in the preceding method.

In favorable cases where a good selection of these crowns may be made, the procedure is simple and expeditious, and the results gratifying (Fig. 317).

Brewster's Bridge Teeth.

Another type of porcelain tooth designed especially for bicuspid and molar dummies, and to be used in the manner indicated in the preceding

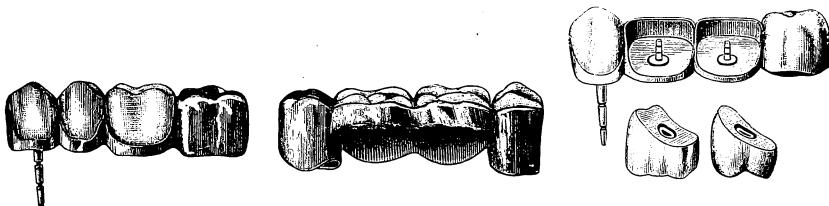


Fig. 317.

method, is manufactured by the Brewster Dental Co., of Chicago. The principle involved in this tooth differs from the original "tube" tooth, Davis Crown, and similar types, in that the lingual surface is not so deep *cervico-occlusally*, thus giving it a greater range of adaptability to the varied conditions of absorption and occlusion, and in that the dowel enters the porcelain at such an angle as to admit of considerable grinding and yet always offer a maximum degree of strength.

Indications. Because of the opportunities for obtaining the combined requirements of strength and cosmetic effect, the employment of these teeth is more or less

generally indicated whenever the above conditions are at all favorable to porcelain, in bridges involving the posterior teeth where gold is to be used in the construction of the abutment pieces and in the assemblage, and yet where it is desirable to avoid its display.

Indeed, it would seem that this or a similar type of tooth would eventually largely supersede the porcelain facing and gold cusps as substitutes for those teeth within the range of vision, and that their usefulness and more general application will increase in proportion as the variety of moulds and colors are extended.

In the application of these teeth the abutment pieces should first be *completed* and a model with them in place thereon obtained and mounted on the articulator.

The teeth should then be selected and ground to the proper adaptation to the requirements of contact with the model, and of occlusion, being careful, however, to also allow a slight space to exist between each tooth, and between them and the abutment pieces. This precaution is necessary as a means of providing for the shrinkage of the solder in assembling the backings, and of thus admitting of the replacement of the facings after the parts have been united.

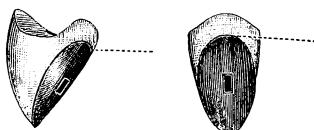


Fig. 318.

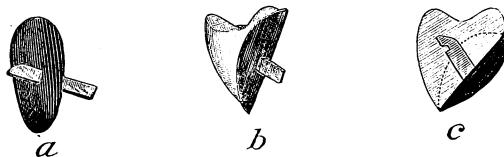


Fig. 319.

Backings of pure gold from 30 to 32 ga. should then be closely adapted to the entire lingual surface of each tooth, which may be done by swaging, as previously described or by burnishing, if preferable, and to better protect the cusps should be allowed to slightly overlap upon the *lingual* surface at this point (Fig. 318).

When the backings are thus properly adapted, they should be perforated to accommodate the dowel. This can be done to the best advantage with a punch the same size and shape as the dowel, or with a small round bur, but in either instance care should be exercised to avoid turning an edge of the perforation down into the socket in the tooth, as that precludes the ready separation of the dowel and backing from the tooth.

A piece of the iridio-platinum dowel with serrated sides, which is made expressly for these teeth and which accurately fits the socket (Fig. 319 A), should then be grasped firmly with pliers and gently forced through the backing and into the full depth of the socket (Fig. 319 B). This relation should now be securely sustained with hard wax until the

dowel and backing together may be removed from the tooth, invested and soldered. The detachment of the porcelain tooth from its backing may be facilitated by sealing the end of a short stick of hard or sealing wax to the cusps of the tooth just previous to separating them.

As strength in the metal superstructure is a very important feature in the use of these teeth, the backing should be well reinforced at this time, and particularly around its linguo-occlusal edge as a means of *boxing* up the lingual cusps, and of thus insuring adequate support to them (Fig. 319 C), and this should be done with a liberal use of 22 or 20 K. solder, so that it may not be re-fused in the final assemblage.

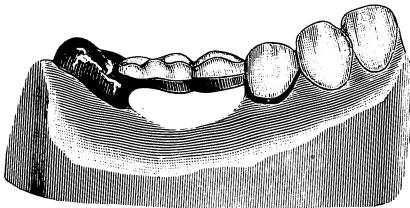


Fig. 320.

When this has been accomplished the backings should be cleaned in the acid bath, adjusted to position on the teeth, and both then properly assembled on the model. After securely uniting the metal parts with hard wax, the teeth should be carefully removed therefrom and the backings and abutment pieces then invested. If investment material *sufficient to securely hold the parts together* be used *at this time*, and the model subsequently trimmed away until the under surface of backings is freely exposed, no further investment will be required.

As a means of insuring a maximum degree of strength in the final assemblage of the various parts a piece of round iridio-platinum wire from 14 to 16 ga. should be fitted over the center of the backings from one end to the other, after which the case may be heated, and the soldering completed with 18 K. solder, when it should be finished and polished and the teeth then mounted with cement.

Variations. Slight variations of the same principle are also manufactured and may be equally applicable to the anterior teeth, to "saddle" bridges where the bite is

exceedingly or moderately close, in either "fixed" or removable structures, and to posterior teeth for the lower arch where only the occlusal surface is desired in order that "open" or "self-cleansing" spaces between them and the gum may obtain (Fig. 320). Typical cases showing the application of these teeth to bicuspid and molar dummies are illustrated in Fig. 321.

The Boos Method.

While several methods of applying the removable or replaceable principles to the ordinary long-pin flat back teeth, or even to vulcanite

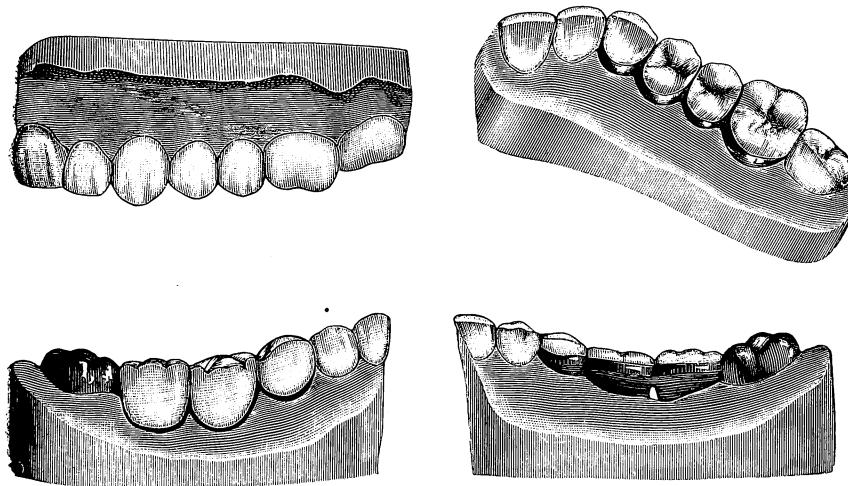


Fig. 321.

teeth, have been devised, the one known as the Boos method manufactured by the Iowa Dental Specialty Co. is undoubtedly the most simple, complete and practicable yet presented. In a way this system is somewhat similar to that advocated by Dr. Emory A. Bryant, of Washington, which has been previously described in its application to crown work, but it is a decided improvement thereon because in the employment of Dr. Bryant's method the pins are allowed to remain at right angles to the long axis of the facing, thereby causing considerable bulk or thickness of backing immediately over them.

Thus when applied to the six anterior teeth—where both of these methods are most generally indicated—an unnecessary thickness would so often interfere with the occlusion as to materially limit the class of cases in which the method would be applicable.

In the Boos method, however, this objectionable feature has been eliminated and even a more secure attachment of the facing is obtained, and therefore when confined to the six anterior teeth the range of application is more extensive.

Another highly important advantage is that the backing is *made to fit* the tooth. For this reason the method is applicable to any form, size or make of tooth, which, as compared with the necessarily more or less limited selection of facings offered by the manufacturers of other special forms of removable or replaceable teeth is much in its favor.

Indications. It is therefore apparent that this method is more or less generally indicated whenever it may seem desirable to employ removable or replaceable teeth,

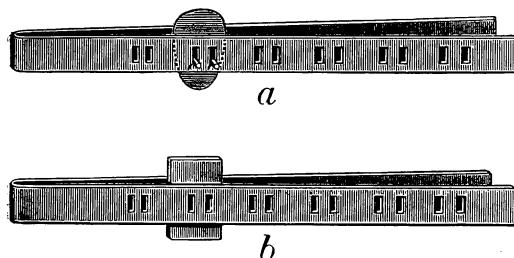


Fig. 322.

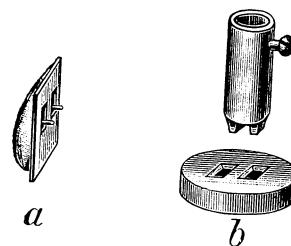


Fig. 323.

for abutment pieces as well as dummies, in the construction of anterior bridges; but the necessity for using gold cusps when applying the method to bridges involving the posterior teeth practically limits its application to the six or possibly eight anterior teeth.

Application. In the application of this method all of the facings for both crowns and dummies should be selected and ground to the required adaptation. The pins of each tooth should then be adjusted to the proper holes of corresponding distance in the "punch-plate" which accompanies the system (Fig. 322 A). After ascertaining which set of holes accommodates the pins the facing should be removed and a backing of about 32 ga., pure gold or platinum, cut somewhat larger than the tooth, then placed between the blades of the punch-plate (Fig. 322 B) and *slots* punched in it by means of the "press" which is also a part of the system.

When so prepared, the backing is then removed and placed in position on the facing, with the pins resting on one or the other edge of the slots in accordance with the direction in which they are to be bent. If this is rootwise, which is usually the preferable direction in order that the incisal end of the backing may be as thin as possible, they should rest against the cervical edge of the slots (Fig. 323 A).



ITEMS OF INTEREST

With the backing held in this relation it should be burnished or swaged with any of the swaging devices to a perfect adaptation, and then trimmed to the outline of the facing. The next step is to construct a cover piece which will form a box for the reception of the pins and protect the slots from solder. This is formed by swaging between dies which correspond with the distance between the slots, the proper ones being selected from a set of three which are also a part of the system (Fig. 323 B).

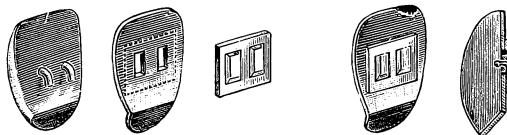


Fig. 324.

This should then be properly adjusted to position on the lingual side of the backing, but as the raised places are purposely made longer than the slots, in order to accommodate the ends of the pins when bent, the cover piece must be so placed in its relation to the backing as to have

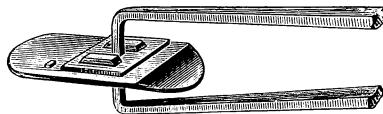


Fig. 325.

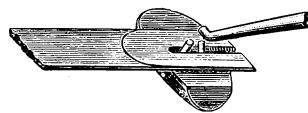


Fig. 326.

the extra space present toward the direction in which the pins are to be bent. Thus if the pins are bent rootwise the extra space must be in this direction (Fig. 324), while if to be bent toward the incisal end the reverse relation is required.

When the two are so adjusted they should be held securely in place with small pointed pliers, the immediate ends of which are bent at right angles (Fig. 325) and soldered with a small piece of 22 K. solder.

The pins should now be bent until their ends will engage in the space between the combined box and backing thus formed, which may be easily accomplished by placing the facing in the "tooth holder" and then using a suitable instrument (Fig. 326). If the pins are too long to enter after being bent, their ends may be cut off until the facing slips easily to place.

Facings and backings should now be adjusted to position on the model and the relation between the backings securely sustained with hard wax, after which the facings should be carefully removed and the aperture for the accommodation of the pins *filled with moistened whiting* as a means of precluding the possibility of subsequently filling this with solder.

The case should now be invested and soldered, and then finished, after which the facings may be attached with cement and the piece

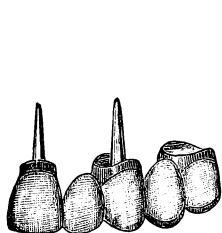


Fig. 327.

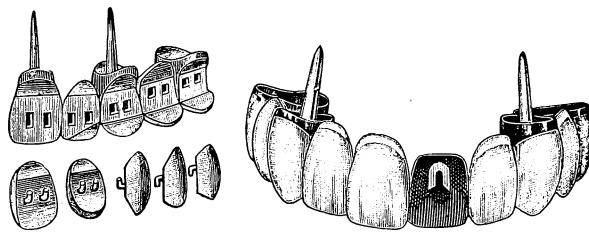


Fig. 328.

mounted. A typical case, including even the bicuspids, to which the principle is also applicable, is illustrated in Fig. 327.

Roach's "Wedglock" Bridge Teeth.

The type of removable or replaceable tooth devised by Dr. F. E. Roach, of Chicago, and known as the "Wedglock," is another of the several forms designed to be employed in this manner, but in this tooth a specially prepared backing forms part of the method.

The necessity for using them in conjunction

Indications. with gold cusps when applied to the posterior teeth, however, practically limits the application to the six,

or possibly eight, anterior teeth; but when confined in this range and when the conditions are favorable they offer opportunities for obtaining eminently satisfactory results, perhaps not exceeded by any similar form.

In the application of these teeth to bridgework

Application. requirements are identically the same as applied to the construction of single crowns, which have been

previously described in connection therewith, supplemented, of course, with those incident to the employment of any of the various forms of detachable or replaceable teeth. A typical case is illustrated in Fig. 328.

Steele's Crown and Bridge Tooth.

The principle involved in the type of removable or replaceable tooth known as "Steele's" interchangeable crown and bridge tooth is similar to the one formerly called the "Mason" facing, which has also been previously described in connection with its application to crown work.

This form of tooth, however, differs from the "Mason" in that a dovetailed slot in the lingual surface of the porcelain tooth (Fig. 329 A) takes the place of the platinum "rib" of similar shape, which was formerly used, thus eliminating an element of weakness which was present in the original design, and also in that a projection which accurately engages

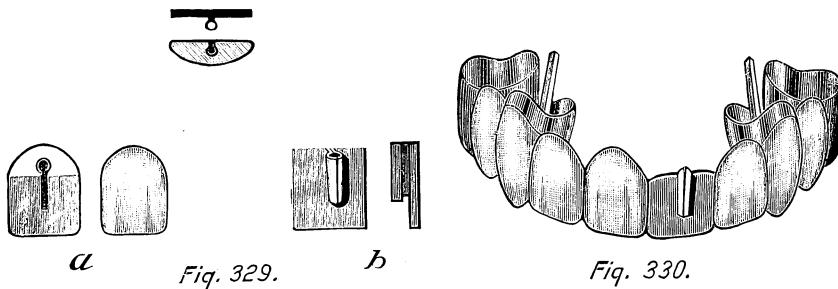


Fig. 329.

Fig. 329.

Fig. 329.

Fig. 330.

into this slot in the porcelain forms part of the backings, which are, like the immediately preceding type, especially prepared for this tooth (Fig. 329 B).

If the presence of so large a slot in the immediate center of the porcelain does not also prove to be too great an element of weakness by increasing the liability of a longitudinal fracture, the application of this form of tooth will doubtless be productive of satisfactory results.

Like the "Roach," "Dwight," or any other style

Application. of tooth having especially prepared backings, it is imperative that the surface of the backing which comes in contact with the facing should be kept clean and free from solder during its adaptation, and during the subsequent assemblage of the parts. Aside from this, all of the other requirements and precautions incident to the application of these teeth in a general way—which have already been mentioned—must also be carefully observed. Fig. 330 illustrates a typical case.

Variations.

The mechanical versatility of the dental profession is so frequently evidenced by the introduction of methods and ideas pertaining to the construction of dental bridgework that it is a difficult matter to keep pace with and do justice to all of the various systems presented. And yet, while those considered as being the most useful and applicable have probably been properly classified in the preceding pages, many good ideas may nevertheless be elucidated in the presentation of those deemed to be perhaps less practicable. Indeed, in learning where, how, or when *not* to use some methods, we may profit by the possession of knowledge from even the most useless ones. Although no effort will be made to consider the full range of methods, or those which are deemed absolutely useless, still the ingenuity manifested in some warrant their consideration here.

The Louque Method.

A method departing from the removable or replaceable type of construction, and involving the employment of a special form of tooth de-



Fig. 331.

signed for and applicable only to bicuspid and molar dummies, to be used in conjunction with any of the various types of abutment pieces, and assembled by soldering, is known as the Louque method.

The form of tooth embraced therein differs from others in that it presents an all porcelain crown having a slightly concaved cervical end to facilitate its adaptation to the gum, or to a saddle, and in that it is provided with a perforation extending laterally through its thickest part from one *approximal* surface to the other. This affords the means of attachment or assemblage, and is obtained by backing the tooth around a thin platinum tube which remains as a part thereof (Fig. 331).

In the application of this method the teeth are assembled by means of passing a piece of iridio-platinum wire through the platinum-lined perforation, allowing its end to project slightly beyond the concaved surface of the porcelain on each side, and then perforating and burnishing a piece of platinum foil over these exposed ends and around the entire lingual surface as a means of forming a backing.

When backed up as indicated, and adjusted to position on the model the spaces between the teeth themselves, and the abutment pieces as well, will therefore be lined with platinum, thus forming a matrix and admitting, when properly invested, of their subsequent union with solder.

In their final assemblage the investment mass should be no larger than necessary, and extremely well heated before attempting to solder, in order that the solder may grasp the short projecting ends of the wire. After observing these precautions the intervening spaces should then be

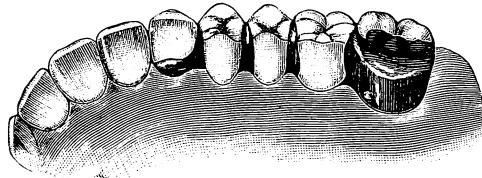


Fig. 332.

filled well with solder, not permitting it, however, to flow over on the platinum which covers the lingual surfaces, as this is subsequently removed in the process of finishing. The principle of attachment and the result obtained in the finished piece are illustrated in Fig. 332.

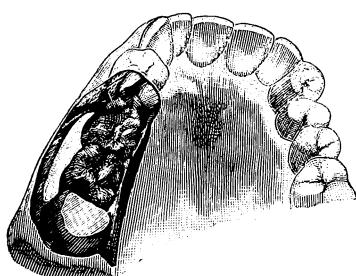


Fig. 333.

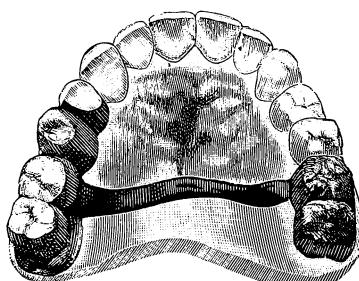


Fig. 334.

While the purely cosmetic requirements are admirably subserved in the application of these teeth, yet the possibilities for obtaining strength in the metal superstructure which must support them appear to be limited, and, when this feature is combined with the possibilities of fracturing the porcelain in soldering which might easily be caused by the shrinkage of the solder, it would seem that, in view of better ones, this method is of doubtful practicability.

Bryan's Methods.

For the purpose of counteracting lateral stress in the application of fixed bridges the methods of construction suggested by Dr. L. C. Bryan, of Basel, Switzerland, may be somewhat novel and interesting.

These embrace a more radical employment of the principle of the "saddle" than usual, and are recommended as being applicable to those cases where some support against lateral stress is demanded by the instability of the abutments.

In bridges involving only one side of the arch where this condition exists, support is obtained by extending curved braces rootwise upon both the buccal and lingual sides of the alveoli, as high as they may be worn with comfort, and in as close adaptation to the tissue as it is possible to place them (Fig. 333).

Or, in cases where a bridge, or even single crowns, may present, or be required upon the opposite side of the arch, this support is obtained by uniting them with a heavy, well adapted, narrow saddle extending transversely across the palate as illustrated in Fig. 334.

By the application of either of these methods it will be observed that support against lateral stress is undoubtedly afforded, and while the prin-

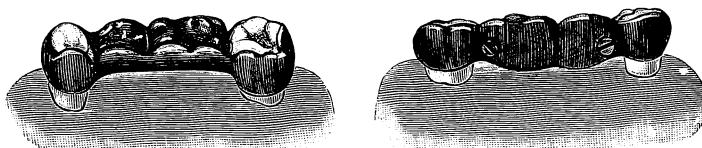


Fig. 335.

ciples involved may be practically for temporary purposes, or as an expedient, it would seem that the utility of such a type of construction is questionable for the reason that if the condition of the supporting roots demanded such provisions, a *fixed* bridge would rarely be indicated, and that the unhygienic conditions necessarily arising would be a menace to the comfort and health of the wearer.

Another somewhat novel but very ingenious **Townsend's Method.** method combining the principles of both fixed and removable bridgework has been suggested and employed by Dr. E. L. Townsend, of Los Angeles, Cal.

In this combination type of construction wide bands are first closely adapted around the entire circumference of the crowns of the supporting teeth—without giving them any preparation whatever—by means of pliers designed for the purpose. When the desired adaptation has been completed, the bands are removed and soldered. Gold dummies are now made to fill the space and to occlude, and the whole is then united with solder. When nicely finished the band and dummy on each end are separated in such manner as to leave shoulder enough to accommodate



a small screw when reapproximated, which may be done with a fine mechanical saw, and through each surface a hole is afterward drilled and then threaded. A small, short screw is now made and fitted into this, and when the adjustment is completed the band may then, and by this means, be locked to place on each tooth (Fig. 335).

While this method, of course, admits of obtaining an accurate fit to the tooth without injury thereto, and of the ready removal of the piece at any time, even though mounted with cement, still the advantages are so slight and the detail so intricate as to limit its usefulness.

Obsolete Procedures. Descriptions of the innumerable methods of anchoring fixed bridges by means of simple bands, projecting ends of bars resting in cavities which are to be filled after the bridge is mounted, etc., etc., is purposely omitted for the reason that such methods when compared with modern procedures are not regarded as being of practical value.

Vacuum Cavities.

By Dr. L. P. HASKELL, Chicago, Ill.

It is amusing that some dentists are contriving appliances for retaining an upper denture in place.

The most recent is one called Rauhe's Plate Retainer. No doubt it accomplishes the object, but like all other similar appliances, is totally unnecessary. This, however, is not the most serious objection. Every dentist knows that the center of the palate is hard from the top of the anterior ridge to the soft palate. But how few dentists seem to realize, judging from their actions, that it is the only portion of the upper jaw that never changes. Under rubber plates there is constant change in about eighty per cent of mouths owing to its non-conductibility of heat. Under metal plates there is some change, but nothing as compared with rubber.

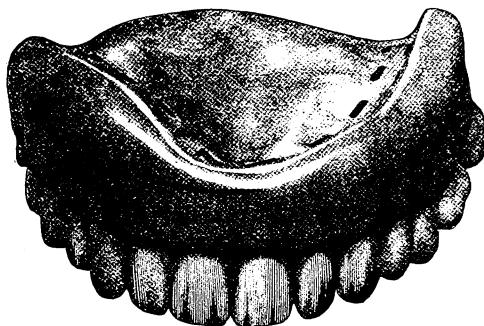
Unless provision is made for this change, it is only a question of time when the plate is resting and rocking over this hard center, and it is right here that the vacuum cavity is objectionable, for the reason that the anterior and posterior margins cause the rocking of the plate.

The remedy is placing a "relief" over the hard center from near the top of the ridge to within about one-quarter of an inch of the posterior margin of the plate, and plates can be worn farther back than usually made.

Patients should be dissuaded from wearing rubber for permanent work and, since aluminum makes so good and cheap a substitute, there is no reason why rubber should be worn.

Another fact to be considered is that with the flat ridgeless jaws better success can be attained with swaged metal plates than with rubber, and that, too, without the vacuum cavity.

The fitting of a metal plate is simple when done by the use of simple methods. Herewith is a photo of an upper denture constructed for the worst condition of a jaw I ever met, and yet the patient told me after ten years' wear that he often forgets he is wearing artificial teeth.



What ridge there is is flexible. On the right side a portion of the maxillary had been removed and so is hard, and center is hard and elevated. As he had a long upper lip the bite is long so as to restore the contour of face, and, of course, the longer the bite the greater the leverage in eating, which would seem to increase the difficulty of using, but yet does not. He has all his lower teeth.

Fixed Splint for Retaining Loosened Teeth.

By Dr. E. A. VAUGHAN, Denver, Colo.

Many appliances have been devised for the retention of loosened incisor teeth. The one which I describe has been used by me in nearly fifty cases, and has given my patients comfort and unqualified satisfaction. The same principle has also been applied in a number of cases as an attachment for small bridges, in places where bands and crowns would have been unsightly and uncomfortable, with equal success.

The requisites for the work are a set of Bryant's bridge repair instruments, consisting of screw dies, nut driver, cone-shaped burs for the

direct hand piece, conical gold nuts, iridio-platinum wire, 23 gauge, 31 gauge pure gold plate, and straight drills a little larger than the iridio-platinum wire.

The first step is to ligate the loose teeth, holding them as firmly as possible, and in their natural position.

With any sharp instrument drill holes, just above the pulp chamber, through the loosened and adjoining firm teeth on either side. Usually this includes the four incisors and the two cuspids. These holes must be parallel with each other, or there will be great difficulty in inserting the finished piece. With the cone bur countersink these holes on the labial side to nearly their full depth.

Into the center of a square piece of pure gold plate, a little larger than the tooth, solder a piece of the wire. Put in position on the back of the tooth, with the wire passing through the hole, and lightly burnish to the surface. Remove and trim exactly to the shape of the tooth. Cut threads on the wire, return to position, screw the nut down firmly and burnish the gold thoroughly to place. Repeat this process on each tooth until all are backed and the backings held firmly by the nuts.

Cut away the front of a partial impression tray, and with plaster take impression of the lingual surfaces of the teeth with backings in place. Unscrew the nuts, remove backings and place them in impression. Run model with investing material. I use Sump. Separate and solder the assembled parts together.

In inserting the piece, apply the rubber dam from second bicuspid to second bicuspid. Cement each tooth separately, beginning with the firm teeth, springing the appliance back and working the cement down between the backing and the tooth, and also into the drilled holes. Screw the conical nut down tightly into the soft cement, dress down flush with the tooth surface and polish.

Appliances of this kind which have been in place for three years are doing good work, show no signs of deterioration, and I find the gums even when receded nearly to the apices of the roots firm and healthy, and in most cases pyorrhœa has completely disappeared.



Answer to Dr. Dewey's "Review."

By CALVIN S. CASE, D.D.S., M.D., Chicago.

In the October, 1905, ITEMS OF INTEREST, is an article by Dr. Martin Dewey, of Grand Rapids, who graduated from the Keokuk Dental College in 1902, since which time he has been practising orthodontia as a specialty in connection with other departments of dentistry. He has entitled his article "A Review of the Principles of Occlusion and Dentofacial Relations," which was published in the July ITEMS OF INTEREST. It is a misnomer to call it "a review" since it does not take up the main questions at issue except in platitudes.

I have not the time, nor inclination to take advantage of the many points where he has laid himself and the "new school" (if this represents the sentiments of the "new school") wide open for attack.

If Dr. Dewey will look over "A Reply to Dr. Ottolengui's Criticism" in the same number which publishes his "Review," and will then carefully read the *whole* of the articles under the headings "Origin, Use, and Misuse of the Intermaxillary Force," published in the May, 1904, *Cosmos*, and also the *whole* of the article he attempts to review, I think he will find, if he is at all inclined to be honest with himself and his readers, that nearly all of his adverse statements which he makes no attempt to scientifically elucidate, together with his shameful insinuations, are fully answered.

My present reply will be confined to the following criticism which he essays to make upon the treatment of one of my cases, and which may be taken as a fair sample of his capability as a reviewer.

**Dr. Dewey's
Criticism.**

"Figure 1 of Dr. Case's article (July ITEMS OF INTEREST, page 511) shows facial outlines of one of his patients. Dr. Case fails to give age of patient, but I would judge from the models that the second

molars are not fully erupted; but the models are very poorly shown. I think the patient is about twelve years of age; features undeveloped, anterior teeth crowded and bunched. Why? The arches have not developed with the teeth; neither is the face fully developed. We have the teeth of an adult in the mouth of a child. Very often we have parents

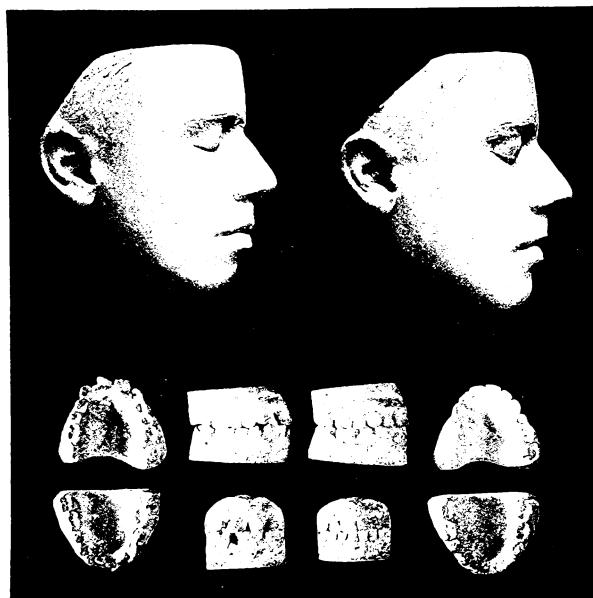


Fig. 1.

calling our attention to children's teeth at the time of the eruption of the permanent teeth, and claiming the teeth are too large. They are unaccustomed to seeing such large teeth in the child's mouth, and some dentists seem to have never become accustomed to it either. It results often in the anterior teeth being crowded and bunched, not because they are too large for the arch, but because the arch is undeveloped. If they do erupt in their proper place and are not crowded, they may seem to be prominent because the remaining parts of the face have not developed. I do not know by what standard or type Dr. Case judges his patients' faces when he says that Fig. 1 is suffering from protrusion. We have

a fine forehead, fine nose, a nearly straight upper lip, and not a prominent one. If Dr. Case will examine any of the standard works of art he will find that the lip which belongs to the forehead and nose of that type is slightly curved, and the upper lip forms more of an acute angle with the nose, lower lip slightly farther back than the upper. If such a condition had been obtained the facial outlines (Fig. 1) would have been bettered and would have improved as the patient grew older. Judging from the result, if Apollo, Venus, Mercury, or Diana were to appear in Dr. Case's office he would at once proceed to treat *them* for "protrusion" of the teeth and inharmony of dento-facial outlines!"



Fig. 2.

**Dr. Case's
Reply.**

The said case, shown in Fig. 1, is that of a young man whose teeth were regulated during his eighteenth year of age, principally while he was attending Princeton College. He was taller than his father, and as will be recognized by any one of judgment, his features were strong and fully developed. Fig. 2 was made from a photograph taken after treatment.

Examine the dental models before treatment, note the normal occlusion of the buccal teeth—which was alike on both sides—and the jumbled

mal-alignment of the labial teeth. Then compare their general positions as a framework, to the beginning facial outlines.

I wish to say in reference to the profile casts, shown here and elsewhere, that they are made from plaster impressions taken by myself and by my assistants. With the teeth in masticating closure and the lips in natural pose, a very thin layer of plaster is first laid over the features rapidly but delicately with a spatula, so as to avoid making the slightest change in contour. This is re-enforced with a thicker layer to prevent breakage upon removal. When these impressions are filled,



Fig. 3.

trimmed and mounted in the laboratory by other hands, they form casts which exactly reproduce every outline of the features, even to the most delicate skin markings, eyebrows and hair.

The superiority of these casts—the impressions for which are no more difficult to take nor objectionable to patients than plaster impressions of the teeth—is incalculable as compared to individual photographs for study and comparison of cases, because it enables the operator to constantly have before him the outlines of every contour from different angles of view, to compare with changes made or demanded for esthetic perfection while the case progresses.

In the profile outlines before treatment shown in Fig. 1, the upper lip in relation to the nose, forehead and malar prominence, is not unpleasantly protruded, though far more so in relation to the chin which should always be the principal point of comparison in the contemplation of facial correction. Moreover the naso-labial protrusion over the canine

tooth and eminence is not discernible at this angle of view though it is shown to be quite pronounced in viewing the cast itself, which at once proves the superiority of the casts for purposes of study and comparison.

Fig. 3 is from a photograph at a different angle, with the hope of showing more clearly the real conditions. Note the angularity of the buccal and dento-facial outlines as compared to the rounded and graceful contours of the corrected cast, which is due wholly to the greater relief of tension upon the labial tissues from retruding the underlying framework, permitting proper redundancy and fullness of buccal tissues.

Look again at the crowded and overlapping malposition of the upper labial teeth. Does it require anything more than the usual amount of common sense to see that all of these teeth cannot be placed in arch alignment, as Dr. Dewey would treat the case, without still further protruding the already protruded upper lip?

Now turn attention to the facial outlines below the parting of the lips. What is the cause of that least of all to be desired *receding chin effect*? Mainly because of the protruded malposition of the lower teeth upon which the lip depends for its prominence and contour, which is enhanced no doubt, in this instance, by the strained effort to close the lips, which always retracts the tissues of the chin.

Look again at the crowded and overlapping malposition of the lower teeth. Does it require anything higher than the ordinary mind to plainly see that all of these crowded and bunched teeth cannot be placed in arch alignment, as Dr. Dewey advises, without further protruding the already protruded lower lip in relation to the chin; and on the whole that the entire dento-facial deformity would become far more pronounced with such treatment?

Does it not seem strange that anyone with no practical experience in orthodontia to speak of, and one moreover who is unable to see things which are as plain as day to any discerning mind, should become so immersed in the sentimental quagmire of false teaching as to blindly assume such offensive arrogance of artistic ability while viewing the pictures of these casts—the very palpable deformity and beneficent effects of treatment, etc.—to be led to say: “Judging from the result, if Apollo, Venus, Mercury, or Diana were to appear in Dr. Case’s office he would at once proceed to treat *them* for ‘protrusion’ of the teeth and inharmony of dento-facial outlines!”

Extraction. What are the teeth for, if not for purposes of mastication and as a framework to facial beauty?

Why increase a facial deformity for the sole purpose of preserving certain teeth which are absolutely unneeded for any good



purpose and whose presence in the arch prevents the possibility of esthetic correction?

By extracting the four first bicuspids with a perfect preservation of the original normal occlusion of the remaining buccal teeth, the protruding labial teeth could then be retruded and placed in arch alignment from stationary anchorages, reinforced with occipital and intermaxillary auxiliaries, as all and more of the space obtained by extraction was needed for the retruding movement to correct that which would have been, with the incisors in alignment, the most pronounced bimaxillary protrusion it had ever been my fortune to treat. Even with this amount of retruding movement, it can be seen to be still insufficient to perfect dento-facial inharmony, and yet by removing the principal prominence of the teeth and thus enabling the lips to close with ease, note how the entire features of the physiognomy are strengthened by the apparent greater prominence of the chin. Where would that poor chin have disappeared to, under the treatment advised by my able (?) reviewer, to say nothing of his fantastic comparison of this face to all the fair gods and goddesses of beauty.

He would have it understood that *he* and the "new school" whose teachings he is attempting to follow would correct without extraction, these crowded and overlapping and already protruded teeth, in the mouth of an adult, because—as he twice quotes—"the full complement of teeth is necessary to establish the most pleasing harmony of facial outlines." It is certainly refreshing to see how Dr. Dewey has idealized that theory, which he, no doubt, earnestly believes to be as true as a divine prophecy, and consequently applicable in every case, else, as he seems to think, it would not have been given to the world for its future guidance.

Let us suppose that it is possible, after he had expanded the arches to an abnormal width, as he advises, and protruded the front teeth to alignment, that he suddenly awakened to the idea that his patient after all did not exactly possess the features of an Apollo. Whereupon he might feel it incumbent upon him—as an artist who is conversant with all the "standard works of art" which he kindly advises me to study—to *retrude* all of those twenty-eight teeth, the full width of a bicuspid or more to correct the facial outlines—for surely he would not leave a patient with such a decided dento-facial deformity, a part of which had been caused by his own operation. I suppose he would accomplish this retruding movement with the intermaxillary force, with which he seems to think he can do quite everything demanded, and of which those of us who are without the pale of understanding these inner secrets of the "school" have much to learn. He says, "Judging from Dr. Case's article



ORTHODONTIA

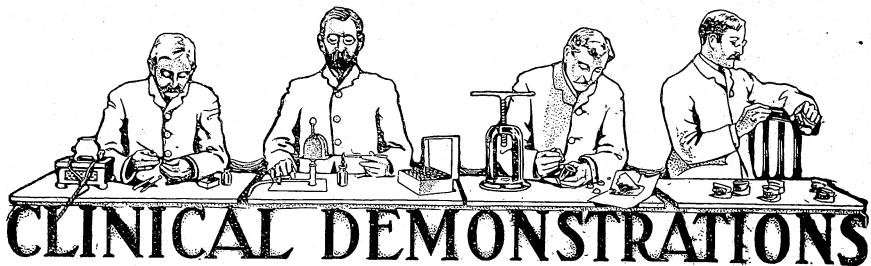
he has never grasped the full usefulness of his (?) discovery, intermaxillary force."

How shall we describe the modus operandi of the great retruding movement of the upper and lower teeth with the intermaxillary elastics which he intimates is possible and advisable?

As the teeth in this case are in normal occlusion one set would require retruding exactly the same as the other "to preserve this very important relation" of all the teeth upon which normal facial outlines are dependent. I wonder if he would retrude the lower teeth first, and then afterwards the uppers? Or would it not be quite as well to retrude both sets at the same time, by crossing the intermaxillary elastics in the form of the letter X, from the front teeth of one set to the back teeth of the other? In either event to accomplish the result in the same way that men often—on paper—lift themselves with their boot straps. There is certainly no other way—except by "suggestion"—to correct a decided bimaxillary protrusion with the intermaxillary force.

With all due deference to Dr. Dewey's faithfulness to uphold the teachings of his school, which in this instance seems to have led him into devious paths where angels might fear to tread, I think I may make bold to advise that before he writes another "review" it would be well to consult some of the older men of his school, who I am sure would understand the inadvisability of "sending a boy to mill."





CLINICAL DEMONSTRATIONS

Twenty Years Evolution of Porcelain Bridge Work.

By E. PARMLY BROWN, D.D.S., New York, N. Y.

Clinic before the Pennsylvania State Dental Society, June, 1905, and the New Jersey State Dental Society, July, 1905.

In September, 1886, the *Dental Cosmos* published the first account of porcelain bridge work which I had demonstrated on May the 4th of that year, at the First District Dental Society's Clinic, New York, where I exhibited specimens in and out of the mouth; and that evening, at the society's meeting, I read the first paper on this subject.

One of the cases shown at that time is an upper **Figure 1.** first bicuspid anchored into the second bicuspid with

gold filling. It has been inserted about twenty-two years without breakage or displacement. I took the patient to the Pennsylvania State Dental Meeting this year. (Fig. 1.)

I also exhibited at the Pennsylvania Clinic and **Figure 2.** at the Asbury Park State Meeting the case of a lady

patient with ten teeth on porcelain bridges, inserted sixteen years ago, mostly anchored with bars into gold fillings in living teeth; the posterior attachments being gold crowns covering the living second molars; five other attachments were gold fillings, and one a root pier. There were four distinct bridges, not extra heavy, with a medium short bite and rather small teeth. No filling has loosened, no teeth broken out, and the gums are perfectly healthy. Three slight accidents occurred in the sixteen years, which required three hours' work to repair. Some porcelain flaked off the palatine portion of one of the lateral bridges, due to imperfect baking; one bar broke where it entered a gold crown; and one bar loosened in the cement in a gold crown. The cases were easily removed, the tooth rebaked and the bars soldered, which was not done originally, depending on the cement for retention. These acci-

dents occurred after thirteen years' usage. This case was available for exhibit by arrangement with the patient when the work was done. It was shown at the First District Society meeting in New York when it had been used one year, and again when used five years. (Fig. 2.)

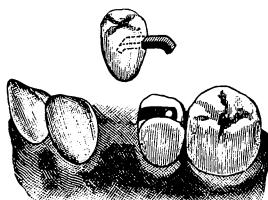


Fig. 1.

I see in my practice every year hundreds of cases that have been worn from one to over twenty years. The question of durability of porcelain bridges is settled, when properly constructed with the strongest and best teeth and the strongest tooth bodies and gums. Dr. Le Cron's table of crushing strength shows between thirty and fifty per cent superiority of Close's body over other standard makes. The Consolidated's and the

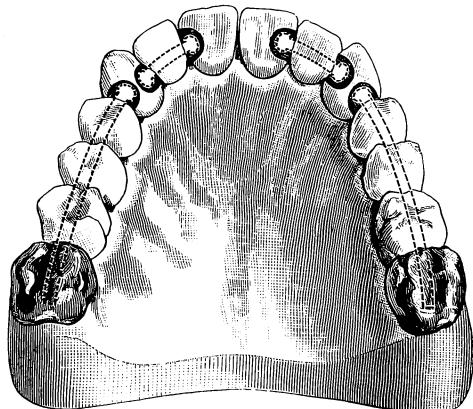


Fig. 2.

Dental Supply Company's teeth, using the fine grain Whitely tooth body, I prefer to all others for re-baking for porcelain bridges and crowns. Several other makes are excellent: Justi's, Johnson & Lund's, Sibley's, etc. The S. S. White teeth, though very strong now for other uses, are liable to roughen when used for this purpose.

With the Felton Electric Furnace, which I have used for a year without accident, all the former annoyances of baking have vanished. Flat back teeth are most convenient to apply.

For two vital reasons I consider porcelain bridges stronger than gold bridges with porcelain faces.

Advantages of Porcelain over Gold Bridgework.

First.—The fracturing or tearing off of the facings is not so likely, as the facing of the porcelain bridge is not only soldered by the pins to the metal framework, but, in addition, it is baked to the metal.

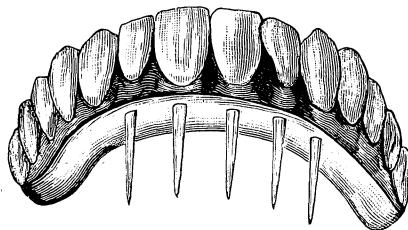


Fig. 3.

Second.—The iridio-platinum base plate resting firmly on the gum gives more strength from pier to pier than the gold bridge not so supported, as well as taking from the pier supports all the strain of mastication that is exerted on the alveolar ridge.

This difference in the two systems makes it possible to insert porcelain bridges on a number of loose roots, which, assisted by the ridge support, allows nature to tighten the roots and thereby gives many more years of usefulness than would be possible with a bridge not supported on the ridge.

A few reasons why the perfect porcelain bridges are superior to the gold bridges are: greater cleanliness, more natural appearance, greater strength, perfect palatine contour for articulation, cheaper construction, less difficult construction, absence of metal taste, ease of restoring lost alveoli, resting on the alveolar ridge increases the life of the piers at least fifty per cent, and the support given by the ridge enables bridges to be retained by fillings in many desirable cases.

Microbes Inhibited. I discovered early in these experiments that when smooth porcelain rested against the gum, there was never any evidence of microbial cultures present; a condition almost always found where

alloyed golds are used, as oxides and sulphides are formed on which the fetid, bacterial growth establishes itself in all localities where perfect cleansing is impossible or neglected. This condition is due to the chemical action of the fluids of the mouth on the copper and silver used in alloying the gold, which does not occur with pure gold or platinum. The same condition is found in nature, which accounts for the absence of copper and silver placer deposits; they have been dissipated by contact with air and water, while the particles of gold and platinum remain.

Where the incubation of disease microbes is extensively established

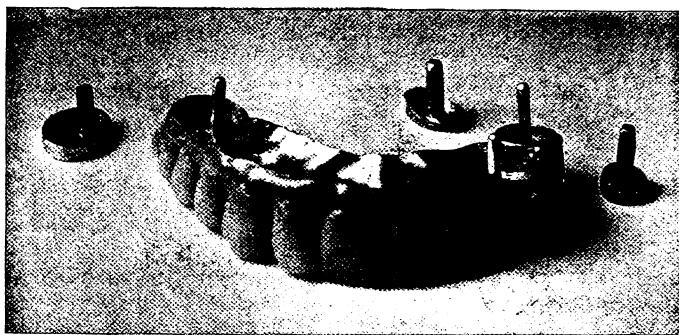


Fig. 4.

by a mouth full of gold dentures, an environment sometimes exists that encourages their increase up into the billions, as has been recently shown under the microscope.

Figure 3 shows a full upper porcelain bridge inserted immediately after several roots were extracted; this was understood to be temporary and was to be replaced by a permanent case in a year or two, after complete absorption of the alveolus. It lasted seven years and a half without any breakage of the porcelain; was then removed, and a permanent case inserted.

Figure 4 is an upper removable denture of ten teeth, sustained by three pier roots, which are capped and tubed with corresponding caps and pins attached to the iridio-platinum base of the denture. This case was made removable and in duplicate because the teeth were very small and the bite so close that there was some danger of fracture.

When the work began, where roots were used as piers, no bands were employed. This was changed in time; as the band on the end of the root gives the required strength, protects the cement from disintegration, and the end of the root from decay and danger of being split. Bands made

of iridio-platinum are not irritating to the gum tissue as alloyed gold is.

Originally no plate was used as a base to rest on the gum and give the proper foundation at this point. This plate now simplifies construction, as well as greatly increasing the strength of the denture.

The last evolution of the plate is a double one of **Double Plate Base for Porcelain Cases.** 31 or 32 gauge each, one plate punctured full of holes with a plate punch, the rough surface toward the porcelain; both plates swaged, then soldered together with pure gold or platinum solder. This plan insures a better adaptation with so stiff a metal and prevents the porcelain separating from the metal.

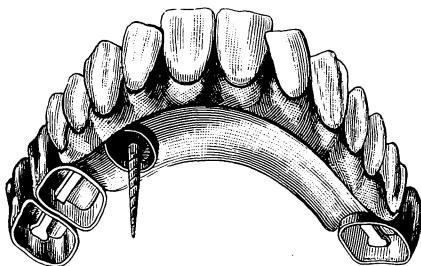


Fig. 5.

All the details of constructing these dentures, which include more than ten different ways of attachment, are not to be incorporated in a single paper, which merely aims at the evolution of the art; but a description of the perfected porcelain crown, which is used also for the bridge work, is in order.

The Perfect Porcelain Crown. Whether for simply crowning a single root independent of a bridge, or for a bridge pier, the perfected porcelain crown is made by first trimming the root down as the case demands, to or near the gum level in all parts except on the labial, where it should be taken off a line or two below the gum to allow the gingival margin of the tooth facing to extend under the gum, where, in most cases, all the metal should be ground off, the tooth taking its place. The band is first fitted, not too tight, using iridio-platinum; free fitting is essential where many caps are to be inserted in a large denture, to allow for shrinkage both in soldering and baking.

The band metal should extend above the end of the root on the inner part and sides about one-eighth of an inch, depending on the case; the band soldered, then a cap fitted, invested and soldered; then the pin

fitted, inserted in hole in cap, waxed, invested and soldered, sticky wax being used in both cases to preserve the proper relation of the pin to the cap. The band projecting above the cap is used as a pan in which to bake the porcelain backing, after having ground the facing to place, waxed, invested and soldered; pure gold is used for soldering.

The band projecting above the metal forming the cap is then notched like saw teeth, enabling the porcelain to take a firmer hold and permitting the porcelain to cover the metal at this point with safety.

The many different ways of inserting these dentures and the minute details of their construction are impossible to incorporate in a magazine article. This paper is written to recount the perfect success of the system.

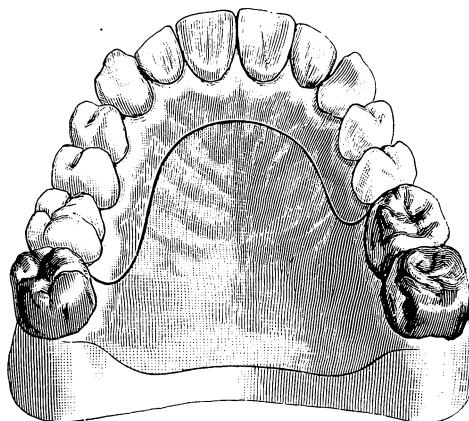


Fig. 6.

Notwithstanding the fact that the first book published on crown bridge work, had several pages and many illustrations on the subject in its first edition (1888) giving me credit for the invention in flattering terms, later editions have almost entirely cut out the work, omitting my name from every part of the book. This the author threatened to do while I was giving my testimony in the Rynear Seamless Gold Crown patent suit. Thus the publishers and author prostituted the book for revenge; which makes it necessary for me to compile a work on Porcelain.

Figure 5, is front and top rim of upper denture, attached by one capped pier canine root and three molar crowns, made of iridio-platinum soldered to the case before baking.

Figure 6 is the palatine view of same case, showing the body and gum covered plate extending back a little on the roof of the mouth to gain proper strength. This case has been worn for ten years without the slightest break.

I recently inserted a full upper case on five loose roots, by urgent request of a gentleman, which, as soon as the caps were assembled and soldered to the connecting plates, to our surprise we found as firm as if the roots had not been loose. The patient called recently and showed the case to be as rigid, after eight months' use, as any case where the roots were not loose.

A Full Porcelain Bridge and Crown Eliminating all Baking.

By GEO. A. LOUQUE, D.D.S., New Orleans, La.

Clinic before the New Jersey State Dental Society, July, 1905.

Figure 1 shows a porcelain bicuspid tooth having a platinum tube running transversely through the tooth from one approximal surface to the other. The cervical end is saddle-shaped for better adaptation to the gums.



FIG. 1.



FIG. 2.



FIG. 3.

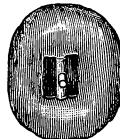


FIG. 4.

To prepare the tooth for this system it is necessary that it be ground to lay as a saddle on the gums. The next thing is to hollow out with a narrow stone, the approximal surfaces at the aperture, groove like, as in Fig. 2. This in order that the iridio-platinum pin may project out far enough from tube, so that it will be well imbedded in solder after the tooth is backed, thereby giving a strong attachment for abutments or adjoining teeth.

In backing a tooth, as shown in Fig. 3, a strip of platinum foil, the width of which is about equal to the length of the tooth, is placed around the tooth from one approximal surface to the other, extending around the lingual or palatal surface, where it is pressed with thumb and fingers until perfectly adapted. Holes are punched through the platinum backing opposite ends of tube on both surfaces. A piece of iridio-platinum wire of proper gauge is then passed through the tube. The next step is to solder the tube, pin and backing together. When using the blow-pipe the whole tooth is invested for backing, leaving only the approximal surfaces exposed where the pin projects. It can also be backed in an oven without investing.

Figure 4 shows tooth with backing on and invested. In assembling these teeth for a bridge, they are invested in the usual manner, and solder flowed into the interdental spaces, thus uniting all parts.

In finishing work the platinum foil is removed from palatal or lingual surface, thus making a clean and all porcelain bridge.

Figure 5 shows a bridge complete.

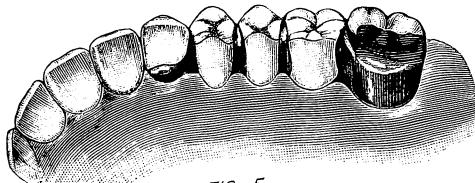


FIG. 5.

Two years of practical experience has proven beyond all doubt that this system of bridge-work is the most natural to the parts, the most sanitary, the most beautiful and artistic of any method yet attempted.

Figure 6 shows a full porcelain crown having a platinum tube in the cervical end, running about one-third down the tooth.



FIG. 6.



FIG. 7.

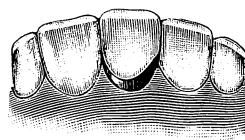


FIG. 8.

To adjust this crown it is ground at cervical end to fit over a cap and pin. This done the crown is backed with platinum foil and a hole forced through this foil opposite tube. A piece of iridio-platinum wire of suitable size is passed through foil in tube and then invested and soldered, as (Fig. 7) attaching tube, pin and backing together. The cap and pin fitted to root is then united to crown by soldering it to the backing attached to the crown.

Figure 8 shows a crown complete.

A Method of Making Clasps.

By Dr. W. DAVID EASTON, Philadelphia, Pa.

Clinic before the Pennsylvania State Dental Society, June, 1905.

The making of clasps when indicated in partial dentures of vulcanite I formerly considered a task, with more or less unpleasing results, until



one day an idea came to me, not only easy to execute but practical as well, as you will find when you try it.

Take a piece of platinum-gold wire about No. 17 gauge, and with a pair of pliers bend like a hairpin, and then press the wire together from where the bend is first made until contact is secured for about $5/16$ of an inch. Unite with solder. Now with the pliers bend to fit the tooth, carrying one end of the wire down to be embedded in the wax over the ridge and the other end to be bent so as to be embedded in the opposite direction. Hammer out the two ends until they are slightly flattened, and roughen each arm of the wire with a file so the clasp will be firmly held in the vulcanite.

Gold Inlays; an Easy Method.

By W. A. CAPON, D.D.S.

Clinic before Pennsylvania State Dental Society, Philadelphia, June, 1905.

This clinic was given to demonstrate that such operations are not only practical, but desirable, with the advantage of being easily and quickly performed and is described as follows:

The cavities are prepared in the manner usual for porcelain inlays and a matrix is made either of gold or platinum foil, same as used for porcelain, although heavier can be used with no disadvantage. While the matrix is in the cavity mat gold is packed into it in much the same manner as spunk. No particular care is necessary and dampness is not harmful. The gold may be of any manufacture provided it is of the mat form. It is used as a medium for soldering and also answers the purpose of covering any break that may occur in the matrix.

When the cavity is partly filled with gold, remove the matrix and cover the exposed surface with liquid rouge, whiting or fine ochre, carefully tracing with small pencil brush to edge of cavity, thereby preventing solder from flowing anywhere except in cavity. The form is now laid on soldering block and the packed mat gold touched with a little liquid soldering flux and small pieces of 22K. solder melted into the gold until cavity is full. If to be contoured small pieces or melted pellets of gold plate are placed at proper points. The excess matrix material is now trimmed away and the filling tried in cavity and occlusion noted.

It is then partially finished and cemented in place, using force if necessary. After the cement is hard the filling is polished in the usual manner.

It is not necessary that any matrix should be invested and when gold is used it is protected from fusing by coating every portion of the matrix

except the cavity proper, thus resisting heat to an astonishing degree.

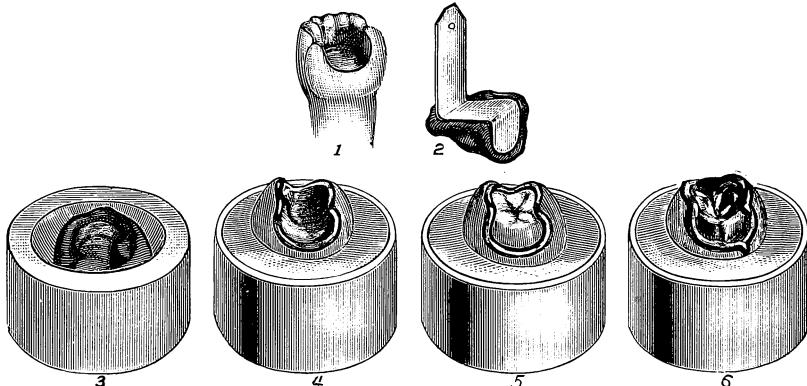
It is recommended that rouge is the preferable substance to protect the matrix because of its great fineness and affinity for a smooth surface. This material is bought in powder and spatulated with alcohol and water.

A Short Method of Constructing Large Contour Gold Inlays.

By Dr. W. B. DILLS, Brooklyn, N. Y.

Special clinic prepared for readers of Items of Interest.

I have found that platinoid No. 30 to 28 gauge makes a most excellent cup or form for the retention of the impression material, after preparing the tooth with suitable draft for an impression and the proper setting of an inlay. (Fig. 1.)



It can be easily cut to shape with an ordinary pair of scissors, and bent so as to conform to the contour of the particular requirements.

The "Perfection Compound" is used. This is manufactured by the Detroit Dental Manufacturing Co.

It is first rolled into pencil or stick form, which permits of cutting after slight warming.

The platinoid, having been cut and bent, should be heated in the alcohol flame, that the required amount of compound may be made to adhere perfectly to its surface, so that when withdrawing the impression, they will come away together.

In such cases as have been protected by the rubber dam, the cavity should be coated with a thin vaseline that the cup and compound may be removed with a perfect assurance, that after its solidification, it may be removed without the slightest danger of any distortion. (Fig. 2.)

Having secured an accurate impression in this way, the same is



invested in plaster, the surfaces of which are exposed that amalgam may be packed and burnished into the mould, giving as the result a practically perfect reproduction of the cavity. (Fig. 3.) The amalgam should be mixed thin, and the mercury worked out, as you are filling in the mould, and allowed to stand over night.

This amalgam die is taken out of the plaster and imbedded in a composition called "Dental Lac," contained in one of the cups, which belong to the Brewster water press.

Now adjust a piece of pure gold, No. 34, over the dye, and press it down into the cavity, with a piece of spunk, and burnish. Take it out, trim and anneal and replace on the amalgam die. Put a piece of spunk in the center and place in the swedge, and swedge and trim to about 1 M.M. of cavity margin; anneal and reswedge. (Fig. 4.)

Fill the matrix with any quick-setting cement. I have a quantity of "Archite Cement" left over, and I think probably there are others of us who have; I find it sets and hardens quickly. After filling matrix with cement, put in the mouth and instruct patient to bite, while the cement is still soft. Take out and trim to an occlusion and contour, and around the edge trim below the enamel margin, about the depth and thickness of the piece of gold that you are to swedge for the top piece. (Fig. 5.)

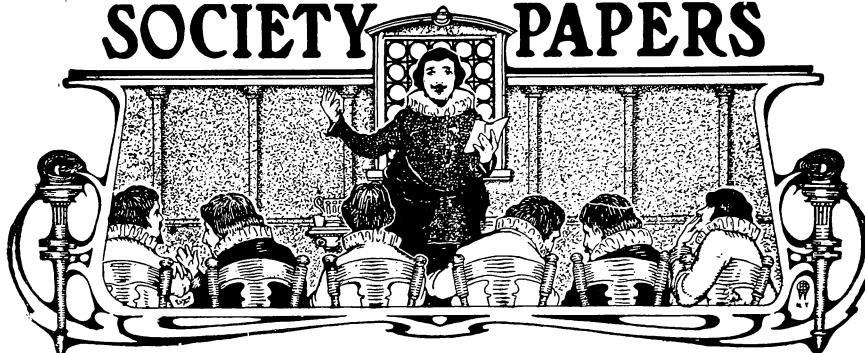
Replace on amalgam die and swedge the top piece of 36 gauge pure gold; trim away to the line where you are to unite the two pieces; anneal and reswedge. (Fig. 6.)

I separate the two pieces and usually find upon tapping the matrix, that the cement will drop out very readily; if not, catch the matrix with the foil-carriers, and tap them once or twice. The cement will drop out whole, so that you can have it at any time to straighten out the upper matrix if distorted in any manner.

I cut out of the matrix one-half or as little more out of its center keeping equally away from its margin in accordance with the shape of the cavity. In cutting out this hole, if I distort the matrix somewhat I anneal it and replace into amalgam die, and burnish well to place, take out again and anneal, place the cement core into position, and reswedge; place top piece in position and reswedge; take out the cement core and unite the two pieces over the Bunsen flame at one point only with 22K. solder and a little powdered borax. Try it in the amalgam die, and see that the two pieces have a close contact all around. Then finish with 22K., and fill in with any lower carat solder, leaving enough space inside to act as an under-cut in retaining the filling. Set in the tooth and allow cement to harden.

All the finishing is done prior to filling, except running a disk over the edges, and polishing with a brush wheel.

SOCIETY PAPERS



A Method of Making a Removable Bridge Plate.

By Dr. A. C. RICH, Saratoga, N. Y.

Read before the Third and Fourth District Dental Societies of the State of New York, October, 1905.

I wish to give you some of the good points of a remarkable bridge plate as they appear to me. I have worked so long with the perfection of such a fixture in mind that perhaps I may be permitted to speak with some authority and with such force that I may convince you of its good advantages. First let me draw your attention to some of the inherent features of this class of denture.

1st, Cleanliness and health of the mouth; 2d, Physiognomy duly considered; 3d, Absolute firmness; 4th, Ease of adjustment; 5th, Adaptability to nearly all non-edentulous mouths.

It is now about nineteen years since the necessities of some such fixture became apparent to me and I made my first removable bridge plate. At that time the essential features to be incorporated seemed to be those just enumerated to you, and time has not changed them. The methods and materials have changed and have been improved during the interim, but even my poor first effort was a success, in so far that it gave good and efficient service for about thirteen years. Now, if you please, let us take up the description of the denture in detail.

The first, *Cleanliness and health of the mouth*, appeals to both patient and operator. Being removable, and made of gold and rubber, it is easily kept perfectly clean, which insures a healthy mouth. Gold as a basis contributes to a healthy condition of the mucous membrane, and while it admits of a thin covering for the palatal portion of the mouth, it at the same time has the strength required.

Physiognomy. The features may be retained as found. Little or no



extraction is necessary, consequently the hideous effects of extraction upon the features are avoided and the natural expression retained.

Absolute firmness. The *quality*, in any substitute for the natural teeth, which makes them serviceable in mastication, and useful in speech. Also permits and encourages a thorough mastication, which aids digestion, avoids dyspepsia and causes good health. This feature also precludes the possibility of sneezing, or coughing the denture from its place. It also permits of clean enunciation of speech.

Ease of adjustment, is almost a necessity, otherwise many patients would be deterred from removing and replacing the fixture often enough to keep the mouth in a sweet and healthy condition.

Adaptability to nearly all non-edentulous mouths. This is *the feature* which appeals to the operator who is called upon to do something for a patient who has some teeth left in good condition, but not enough to carry bridge work successfully, and extraction would change the facial expression beyond restoration, and whereas bridge work would *not* be perfectly clean, a removable bridge plate can be.

Always study your case at the chair, and also by means of impressions and bite. Be sure to take into consideration probabilities, as well as possibilities in making your plans for a removable bridge plate.

Let me say a few words concerning preparatory work, to be done previous to actually taking your case in hand. When the case first comes and you have decided what you will do, if you are to attach with pin and tube crowns, and also with telescopic crowns, make them beforehand. The pins should be made of round iridio-platinum wire, about 15 gauge. The tubes should be made of gold faced platinum plate about 32 or 34 gauge. If you have a lathe with chuck which will carry your wire you can easily form your conical pin; if not, a hand vise will hold it while you rotate it in a slot, and file it down to shape. Always make a pattern, of pattern tin, to get the shape of the piece of plate to make your tube from, and make both pin and tube as long as you can conveniently use. Take a composition impression to make model, on which to form pattern for your gold plate. You save time and do not injure your good model. Make your tapering orange wood sticks immediately preceding the coming of your patient, as the fine points dry out and become very brittle. Do not dip them into the acid until you are ready to use; it makes them soft.

**Technique
of Making Plate.** Now let us take up the method of making a removable bridge plate. We have a mouth, let us say, with the two cuspid teeth and one central remaining. A mouth in which bridge work cannot be successfully placed, and extraction of the teeth would work disaster to the features.

Take an impression as usual. From this make model, and cast dies, and counterdies; swage your horseshoe plate of a size to cover top of ridge, and of sufficient width resting on hard plate to give firm seating. Then after selection of the teeth take a thin disk, and while wet with a stream of water, groove the teeth to be cut off, both back and front at the neck; then with excising forceps cut the crowns off. Take an orange wood stick, cut to a fine tapering point, dip the point into pyroligneous acid, hold the stick lightly between thumb and first finger, with point at entrance to pulp chamber, and in line with root, drive it home with a quick blow on the end of the stick, using a light mallet. You then remove pulp, and fill the root canal at once, and with very little pain. With



FIG. 1.

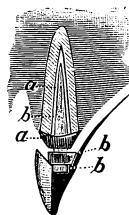


FIG. 2.



FIG. 3.

a wet stone trim and shape end of root. Now take small spear point or twist drill, and drill up into the root following the line of orange wood stick, getting the general line of root from its outline shown through the tissues. Now with a tapering drill (a "Talbot" or "Peeso") enlarge the pit in one root. Then after having placed in it a guide pin which will extend below end of root sufficiently to guide you, enlarge the next, keeping the drill in line with the guide pin, in order that all tubes and pins may be parallel; then place guide pin in this pit, and prepare the other root in like manner, making pits large enough to receive tube with pin in place. Fit a two-third band cap or crown to each root, and drill opening in top of cap, through which pass the tube and pin to place. Take impression (with both cap and pin and tube in place) in each case separately, with modelling compound and chill it. Now remove and invest for soldering. When investment is set remove modelling compound; then carefully remove pin by slight rotative pull. Fill tube with "sump," or plumbago, or other suitable material, dry out and solder tube to cap. Trim off surplus length of tube on face of caps. (See Figs. 1 and 2.) Replace pin, and place in mouth on roots; put plate in posi-



tion, refitting around crowns when necessary, allowing for two thicknesses of gold between plate and roots; then take impression with all in place, chilling it as before, remove, and dismiss patient until next sitting. Wax around the tubes with pink paraffine and wax to simulate the shape of root; then put all in place in impression, and make a model in plaster of paris; after setting, remove modelling compound and fit a half cap or crown of 18-K. gold, same gauge as plate, to the tube crown, which will be soldered to plate and pin. After restoring pin crown to position place impression compound as in the mouth and chill. Then carefully remove all from model. Insert penknife edge, or other instrument, and wedge off the tube crowns, and invest for soldering; remove compound, dry out, and strongly solder pin, crown, and plate together. Now you are ready to see patient again. Place all in position in the mouth, and proceed to take compound impression, and bite, with length, and center mark, with which to guide you in soldering facings on the three crowns, and to place the teeth between in front.

You will probably find the protruding pins of some use in getting proper occlusion and bite; if not, you must build up a stop on one crown, which will enable you to know that your bite is correct. Remove, and after waxing tube crowns as before, invest for soldering; then pour your articulation on inside (after soaping for separation); remove compound, grind, fit, and back teeth to place; then cut away investment, and remove tube caps. Add to your investment sufficient to almost cover plate, and protect teeth while soldering, dry out, and solder. Then partially finish or not, as you see fit, and you are ready to see your patient again. Place all in position again, and take compound impression and bite at one time, taking one side and then the other. Remove, and fill the pits in roots with cotton as you do every time you dismiss patient. Now you are ready to place the back teeth in position with rubber. If you have not soldered loops on your plate to hold rubber, and you desire to use loop forceps to make them, you must wax the pins to enable you to remove, after you have made your model. After pouring your impression place model on articulating frame, and pour bite. Remove impression compound, then remove plate, and punch your loops in proper places; return it to model, grind and articulate the teeth, wax up and proceed as you would any ordinary rubber case, but be sure that your plate is so invested in the flask, that it will remain in bottom half of flask. (Fig. 3.)

I wish to bring to your attention one other case, to illustrate how much comfort you can give some patients. The patient for which this was made is an old lady, 90 years of age, and not very strong. She had in her mouth an upper bridge piece in front, of five or six teeth, loose,

**Case
from Practice.**

illustrate how much comfort you can give some patients. The patient for which this was made is an old lady, 90 years of age, and not very strong. She had in her mouth an upper bridge piece in front, of five or six teeth, loose,

and the tissues very much inflamed. This was removed, and examination disclosed a twelfth-year molar on one side, and third molar on the other, in good, sound condition. Polished roots of each sixth-year molar, and four or five roots in front. I did not wish to extract on account of age, and also to retain present facial expression. Telescopic crowns were made to fit both molars, the outer one being soldered to the horseshoe plate. Ground down the front roots, and fitted the plate around the roots in the rear, and ground teeth to fit the front roots, using the same methods as in the previous case. In the words of the lady after a week's use, "The work is simply perfect." These two cases will neither admit of bridge work, and are both practical cases. Think of the many cases of upper maxillæ, without any teeth on one side posterior to the cuspid, and good masticating teeth on the lower, leaving that side practically useless for masticating, and the inevitable result gradually coming on, of malarticulation. Such cases can have made for them a useful and comfortable removable bridge plate. I use the word comfortable advisedly, making comparison with the partial plate, which would be clasped, and surely be uncomfortable, and of very little practical use. Think of the many lower mandibles without teeth on either side, posterior to the first bicuspid, which can be made comfortable by such a denture, and I think you will agree with me that there is need of something which is not generally made by the profession.

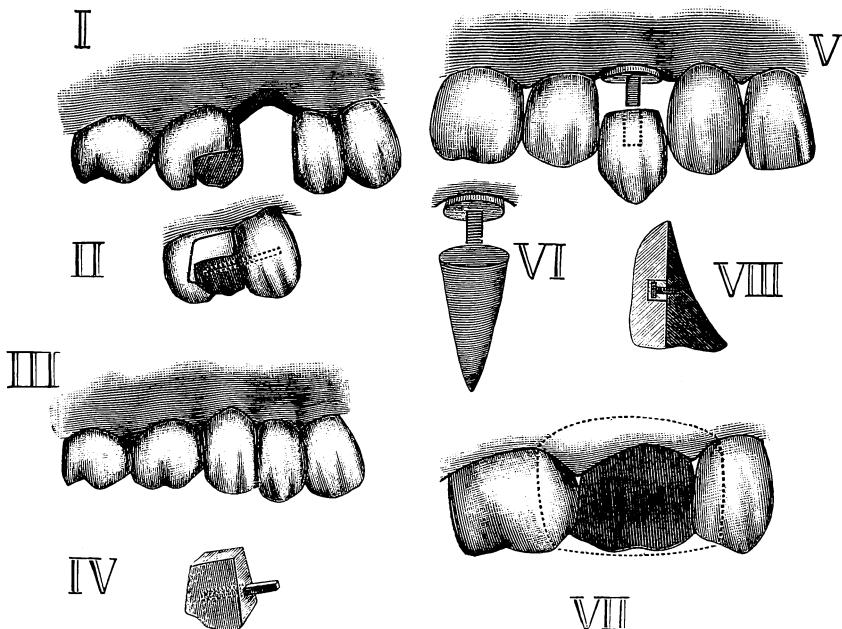
The Adaptation of Porcelain to Special Cases.

By J. WRIGHT BEACH, D.D.S., Buffalo, N. Y.

Read before the Third and Fourth Districts' D. S., Schenectady, N. Y., Oct. 18, 1905.

When asked to present something before this convention, it occurred to me, after canvassing the available topics, that perhaps to describe a few special applications which I have been making of porcelain might be of interest to you—at least, it will provoke discussion and draw criticism—two avenues through which great good often comes as frequently to the essayist as to the listeners. I am not a specialist in the field of porcelain art, neither am I an authority in the theoretical department of this esthetic branch. I am just one of the many plodders in the ranks of our profession in search of more light; therefore, what I present I trust will be freely criticised. Believing that the extreme skepticism which hitherto has existed among the rank and file of dentists has passed away, and that por-

celain is now looked upon as a necessary adjunct to a well-regulated modern practice, it seems to me that we may enlarge somewhat upon the field to which it has thus far been restricted and apply it to many of the heretofore perplexing conditions which present. For this reason, as well as for others, I feel justified in breaking away from conservatism and hazard the good opinion of this body of dentists by exploiting methods of operating which, to speak as charitably as possible of myself, are at least, radical.



Case from Practice. Case 1 is that of a highly organized cultured lady, whose social position would compel us to resort to almost any feasible means of treatment that would keep the glitter of the yellow metal from disfiguring her benignant smile. As shown in the diagram (Fig. 1) the second right upper bicuspid is missing, the first molar having a large mesio-bucco-occlusal cavity encroaching closely upon a normal pulp. Unusual care is exercised to obtain good seating capacity to the cavity, following the accepted rules in its general preparation, its special treatment being that of forming a broad groove of varying depth dependent upon the thickness of the dentine, extending bucco-lingually across the floor of the cavity and the lateral walls, avoiding encroachment upon the enamel toward the occlusal surface. The

matrix is now formed in the usual way, of gold or platinum as desired. The inlay is then baked, restoring the original form of the tooth. An iridio-platinum wire (preferably) of such length as will extend well into the inlay and project two-thirds or three-quarters of the distance across the space to be occupied by the bicuspid dummy, is placed in its position at the proper time during the baking process, and when completed might be represented by Fig. 4. It is then placed in the cavity without removing the matrix and an impression taken in plaster. The bite must also be obtained and the case poured, separated and mounted. A suitable facing is selected, ground and fitted, bending the pins at right angles over the wire, anchored in the inlay, attached together with hard wax, invested in ground asbestos and the parts united with porcelain as represented in Fig. 2. The matrix is then removed, the cavo-surface of the inlay properly grooved and etched and cementation carefully accomplished, giving the finished product as represented by Fig. 3. Occlusal contact with the dummy is relieved and the lingual cusp is not restored further than strength demands. The advantages gained are: Avoidance of exposed metal, an absolutely sanitary case and a highly artistic and esthetic result; no loss of tooth structure, and no metal band to induce a state of gingivitis and pericementitis. The disadvantages are: Lack of strength in masticating (as compared with metal) and those which may be ascribed to porcelain inlays in general. We are, of necessity, forced to lay our reputations on the shrine of cement, and perhaps at times to place our faith in a higher power. However, I believe the use of cement as employed today to be thoroughly scientific and justified by the results obtained. The Jenkins Prosthetic porcelain body was used in the inlay as well as in the attachment of the dummy. The case I have described was the first one of this character I had attempted, but more recently I did a similar one in which both bicuspids had been removed and closure of the space had occurred to the extent that only one dummy was required. The first molar being devitalized, I took advantage of the fact by inserting the posterior end of the pin into the pulp chamber and carrying it across the space, allowed the anterior end to rest in a groove made in the body of a disto-lingual gold filling in the cusp. Although I may eventually be disappointed in the results of these operations, yet I present this idea to you with the hope that it may be a suggestion for some one of greater ability to enlarge and improve upon, but not with my personal recommendation as to its practicability for general use.

All-Porcelain Crown.

Fig. 5 represents a method of constructing an all-porcelain crown. The root is prepared as for a Logan or other crown of that class. A platinoid screw-post is set in the root and projects far enough

to give sufficient attachment to the crown when finished. A cone (Fig. 6) is made of German silver, copper or platinoid sheet, slightly larger than the exposed end of the root. This is filled with modeling compound or dentalac, softened to the proper state and passed over the root and the pin, cooled by flowing cold water upon it and removed. The impression shows the end of the root with a depression representing the location of the crown post. Into this depression is inserted a piece of post metal, a counterpart of the one in the root. It is then filled with creamy cement, and when properly set the parts are separated, giving a good working model of the root carrying a duplicate metal post. A larger impression as represented by Fig. 5 is obtained, also a bite embracing the occluding teeth, which is prepared and mounted in the articulator. Upon the working model the matrix is carefully formed, removed and invested, if desired, and the work of building and carving is begun. At intervals, as the work proceeds, it may be placed upon the articulated model and its restoration, occlusion, etc., carefully noted. The removal of the matrix, cementation, etc., follows in regular order. The metallic cone (Fig 6) may be duplicated in modeling compound or dentalac, softening only the extreme base of the cone which is to be pressed against the root. The many advantages of a home-made crown of this variety are apparent to all, not the least of which is its adaptability to a broad field of special cases where peculiar construction is necessary to meet unusual conditions. There is no ready-made crown in use today that compares with it in but one essential, and that is in strength.

**Restoration
of Broken Facings.**

Fig. 7 illustrates a use for porcelain which will appeal to every dentist present. It is a method of supplying a broken facing in bridge-work—one of the most perplexing and not infrequently the most aggravating operation we are called upon to perform. Remaining pieces of the broken facing are cleaned away from about the pins which are left projecting from the backing. The pins are then separately wound about with dental floss to make the shanks as large as the heads, thus avoiding drawing of the impression by the heads. A cone of modeling compound as described is pressed directly against the backing and an adjoining facing or natural tooth, as the case may be, on either side, cooled and withdrawn. The territory, including a tooth on either side, is filled with cement, the balance and surrounding portion being of plaster. The matrix is then formed to include the territory indicated by the dotted lines, it is removed, invested as described, built up to proper form with prosthetic body and duly cemented.

Fig. 8 gives a side view of the facing in position against the backing, bisected at a point which shows the cavity for the pin to rest in, also its

relative depth and breadth. It should be no larger than is necessary for the pin to pass freely into it, the prospects for good retention being lessened by an increased bulk of cement surrounding the pin.

The advantages of this method are too apparent to require special mention. However, I may add that it avoids the removal of the bridge, in many instances, the weakening of the piece by cutting holes or grooves for the pins; in many others it also limits to a minimum the time and inconvenience to the patient. Far from the least advantage, however, is to the dentist himself, who cannot but experience great satisfaction at having, by a simple means, accomplished results most pleasing both to the patient and to himself.

The Shell Crown.

By R. M. SANGER, D.D.S., Orange, N. J.

Read before the Second District Dental Society, State of New York, November, 1905.

In the years of my membership in dental societies, I have journeyed with various essayists again and again over the same paths, until it seemed as though those paths were trodden down so hard that it were impossible for the mark of another foot-tread to be left upon their surface, and yet I think I can truly say that not one of those journeys has been made without bringing out some new phase of the subject, and leaving some new and helpful thought or inspiration with me. It is with the hope that this may prove to be the case with you that I dare to venture to present such a hackneyed subject as that of the shell crown.

Let me say first that in my humble opinion no self-respecting dentist will place an all-gold crown on an incisor tooth. In these days of such perfect porcelain substitutes I can conceive of no excuse for such an abortion. I also think that an all-gold crown is only indicated after everything else has failed; that it is as a court of last resort.

In making a shell crown three points are essential: 1st, a perfect fit at the neck of the tooth; 2d, a proper contour, and 3d, a perfect occlusion. In my hands the two piece crown can most expeditiously and accurately be made to meet these several requirements, and if you will bear with me for a little while I will give you the details of my procedure.

**Objection
to Bands.**

One of the most legitimate objections to the use of collars is the liability of impinging on the gum just under the gingivis, causing an irritation followed by the forming of a pus pocket and final

exfoliation of the tooth root. This may be avoided by tucking a rope of cotton saturated with vapocaine under the gingivus to anesthetize the gum, then dissecting away the gum to about one thirty-second of an inch in depth; check the hemorrhage with adrenalin chloride 1/5000 and cauterize the wound with trichloracetic acid which gives a clear, dry eschar and gives you a sufficient depth for your collar without impinging on the gum.

**Technique
of Constructing
Shell Crowns.**

The circumference of the neck is then taken with a dentimeter and a band of pure gold 30 gauge is cut the required length, annealed and bent around tooth with the joint at the buccal aspect, lapping the ends, which are then marked with an excavator. Remove the band, cut a trifle short of the mark and solder the ends with 20K. solder. Bevel the gingival edge and stretch the band back on the tooth with the joint at the palatal aspect, and with a small flat steel burnisher burnish the gold to fit the neck closely. Cut the band narrow enough to allow the patient to close the teeth without touching it and with a large ball burnisher, or pliers designed for that purpose, form the contour, while the collar is in position in the mouth. Then with the collar still in position, place a piece of softened modeling compound about the size of a hickory nut in the collar and allow the patient to bite; chill the compound and remove collar and compound together. Drop sticky wax in the under side, sticking the collar fast to the compound and chill. With a penknife or carving tool, carve out the cusps, press into mouldine, pour fusible metal die and swage 28 or 30 gauge gold, tack cusps to collar with the smallest particle of 18K. solder, and replace in mouth to correct bite, then solder and finish, and you should have a crown with perfect occlusion and so perfect an adaptation at the neck that the pressure exerted by the thumb and finger is sufficient to drive it to place. I do not think that there is ever any excuse for malleting either a collar or a crown to place.

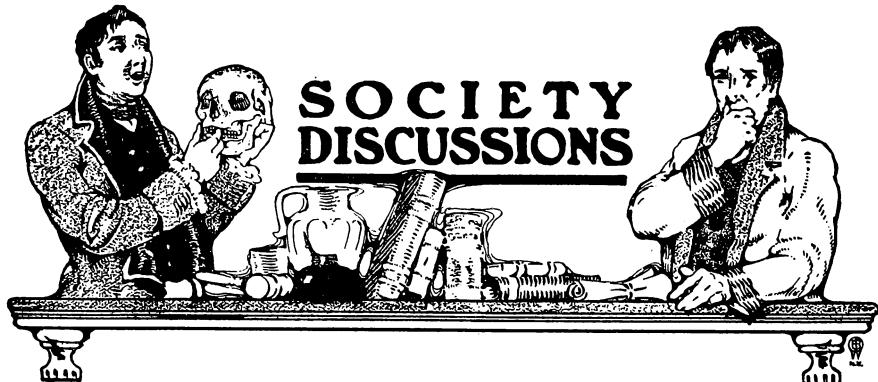
**Bent
for Cement.**

Finally I have found it possible to get a closer adaptation of the cement by drilling a hole through the thickest part of the cusp and tapping it, fitting into this a piece of threaded gold wire. In setting the crown remove the gold wire and allow the surplus of cement to escape through the hole, and when the cement is nearly hard, clear it away from the hole and screw in the gold wire. As soon as the cement is thoroughly hard, cut the wire flush and polish.

I usually make and set these crowns at one sitting, but if two sittings are preferred, a little larger piece of modeling compound is used in taking the bite, giving a fair impression of the tooth on either side of the one

to be crowned both above and below. This is thoroughly chilled, removed from the mouth and mounted on a crown articulator, a little oil or vaseline being placed on the gold band to admit of its ready removal from the cast. After separating a small piece of modeling compound is softened, pressed into the collar, and the plaster teeth closed into it, it is then chilled, and removed from the cast with the collar, and the balance of the work done as described above. This method has the advantage of two short sittings instead of one long one, the work being complete and ready to set on the arrival of the patient the second time. The ready made cusp forms that are furnished with the Hollingsworth and other crown systems can be employed in some cases instead of carving the cusps, the blank being selected and adjusted to the gold collar on the articulator. This is more expeditious than carving the cusps, but does not give so accurate an occlusion.





Second District Dental Society of New York.

November, 1905.

In the absence of the President, Vice-President Hutchinson called the meeting to order, and a quorum was found to be present.

The Secretary read the minutes of the last meeting, which were approved as read.

Dr. Jarvie, chairman of the committee appointed at the last meeting to consider the recommendation contained in the President's inaugural address with reference to investment in the bonds of the Medical Library Association, presented the report of the committee, and recommended that an effort be made to raise by subscription among the members of this society at least \$750.00, of which the society should subscribe \$150.00 from its treasury.

On motion, the above report was received and recommendation adopted.

On motion of Dr. Ash, it was resolved that this society appropriate for the purpose of purchasing bonds of the Medical Society the sum of \$150.00, and that subscriptions be called for from the members with the object of raising, if possible, the balance of \$750.00 as recommended by Dr. Jarvie's committee; also that the committee appointed at the last meeting on the President's address be continued for the purpose of receiving subscriptions for this fund.

The Chairman then introduced Dr. R. M. Sanger, of East Orange, N. J., who read a paper entitled "The Shell Crown":

Discussion of Dr. Sanger's Paper.

The technique, described by Dr. Sanger so clearly shows this method that it leaves very little to be added, and all I can say on the subject is that if all of us would attend to the details of con-

**Dr. John T. Hart,
New York.**



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struction as he has advocated it, there would be less prejudice against crowns in their proper place, and surely where a crown covering a root is used as an abutment, if constructed as he has suggested, there would be less prejudice against bridge work. Dr. Sanger has mentioned the difficulty that we will meet if we unnecessarily wound the soft tissue, and if we drive a crown too far under the gum; and then, again, we know the difficulties if we do not get it far enough. The small amount of time required to treat the gum as he has shown is certainly worth using, and it obviates the necessity of wounding that tissue when we are about to set a crown, and having the embarrassment and annoyance of a bloody field, which prevents the proper drying out when we are about to set the crown with cement.

We have been favored from time to time by Dr.

Dr. Jarvie. Sanger with very ingenious contrivances for artificial crowns, and I was quite impressed with his

introductory remarks with regard to never putting a crown on incisor teeth. I hope no member of this society will ever—or hardly ever—see the necessity for putting a gold crown on an incisor tooth. I saw last week two gold crowns which I put on incisor teeth several years ago in a case where I thought nothing else would serve the purpose, and there may be an instance once in a very great while where it is necessary; but in the mouth of a woman I never have seen a case where I thought it was essential. In fact, I think there are too many gold crowns put in the mouths of patients. I have taken off almost as many gold crowns as I have put on, and I am sorry to say that I have taken off gold crowns where I have found pretty good molars underneath. Within a month I have seen cases where some time ago I took off gold crowns, and there have been none since, and the teeth are good and serviceable without the crowns—infinitely longer lived than they would have been had the gold crowns been left on.

But there are cases where a gold crown is a necessity, and when that necessity arises I think you cannot do better than follow the details pointed out by the essayist tonight. It is a mistake in the majority of cases to put gold crowns on the bicuspid teeth. That is a very common practice, but I have taken off a good many. I took one off recently in the mouth of a lady—a great, ugly gold crown on a bicuspid, which impaired her appearance very much indeed. It seemed to me that every time she opened her mouth to speak I saw nothing but that gold crown. It would have been a simple matter to put in porcelain, so that no one in this room within speaking distance could have detected there was an artificial substance there at all. As I have said, cases do exist where it is necessary to have a gold crown, but in many of those cases they

can be faced with porcelain in such a manner as to hide them. I think there is nothing more repulsive about the mouth of a refined individual than a display of gold.

Since listening to Dr. Sanger's paper, I have an

Dr. Turner. idea that many of you think it very difficult to make a perfect gold crown. I do not think that is the case.

We see a great many gold crowns in the course of a year, and very few of them are perfect. The occlusion may be perfect, the contour may be pretty good, but there are very few of them that fit around the root, and it seems to me that Dr. Sanger has omitted the hardest part of the whole procedure, and that is the preparation of the root. It is not an easy thing to prepare a root so that a crown can be fitted perfectly at the neck; it is a very difficult thing to do, and I think that is what we must spend more time on. Do not be afraid of cutting away too much of the tooth; it is very seldom too much is cut away, and in most cases there is not enough cut away. There must be enough removed so that when a crown is put on it will fit down at the root; and it is very surprising to find how much cutting is necessary on the approximal surface so that it may be properly done.

Some time ago I read a paper before the C. D. A.

Dr. Hillyer. which started on very much the same lines as Dr. Sanger's paper tonight, and for which I was criticized most severely. However, the subject that evening was very much broader, and I wish that Dr. Sanger's paper tonight had been, because what he has given us is excellent, and what he could have added to that would have been of unquestionable value. I do not quite understand his need for using the pure gold band unless he is going to reinforce it by means of solder. It is, of course, the finest material for fitting around the neck of the tooth; but if we perform the operation on the root as Dr. Sanger describes, it is a question whether or not we would get just as good results if we had a stiffer material than pure gold. If the scope of the paper had been enlarged and had covered the ground that Dr. Jarvie has spoken of, we might have had more to discuss. However, if the President is willing, I would like to speak of one thing in addition to what is contained in the paper. A case presented in my office where a superior bicuspid shell crown was made of "crown metal"—gold and platinum. In the course of time the gold outside layer had worn through, showing the platinum and disfiguring—if such can be said to occur—a good shell crown. The patient noticed it and asked if anything could be done. I said one of several things could be done. A new crown could be made, or we could cut out the space and fill it with gold, or we could put an inlay perfectly into that crown. The latter was the operation which



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I decided upon. I cut out upon the labial surface as deeply as I would for an inlay, used pure gold, 30 gauge, for the matrix, and baked the porcelain in the usual manner. Taking the gold matrix with the fused inlay exactly as it was, I inserted the inlay directly into the cavity made upon the surface of the crown with the edges of the gold matrix burnished down and finished. This proved a perfectly satisfactory operation to me, restoring a natural appearance with very little gold showing.

In regard to the other points, it is hardly necessary to say that Dr. Sanger has gone into them as perfectly as he usually does, but I would like to have him answer my question in regard to the use of pure gold.

With regard to seamless crowns, I do not think

Dr. Dills. much of them, but the two-piece crowns which Dr.

Sanger has spoken of tonight I think are very advantageous; but it is very much easier to have those things made in the laboratory than in the patient's mouth—much easier for the operator and for the patient alike.

All our crowns are constructed first by cutting the tooth—we do not crown a tooth that does not need to be crowned—the tooth is cut down thoroughly and a good impression taken of the bite. It is then turned over to the mechanical man, and it is very seldom that we have to even trim off the gold around the neck, for there is a perfect fit.

There is one thing I had in mind. It seems un-

Dr. Hillyer. fortunate that there are not enough instruments specially adapted for the purpose of preparing the roots. There was an instrument specially prepared adaptable to the anterior teeth which was very successful, but it is a question whether we could not have a series of instruments made which could be used in this class of work under all conditions—a set of instruments giving three or four centers upon a molar tooth.

(Dr. Ash stated that he would like Dr. Sanger, in closing the discussion, to state how he reinforces the cusps.)

I am among those who are in the habit of mak-

Dr. Croscup. ing gold crowns occasionally, and I have put on quite a number in my time, and I think I have put on about as many incisor crowns as Dr. Jarvie has. Some time ago I had a lady in the chair, and she was very insistent upon having a gold crown upon a lateral having an ordinary cavity. I was doing some other work at the time, and was engaged for some time with work in this lady's mouth, and she was a lady whom one would presume would not care for a gold crown in that position—a woman of intelligence and social connection. But she still insisted on having this gold crown. I thought it likely the crown would have to come off again, so I made a

crown of 35 gauge pure gold without cutting into the lateral at all, and I put the crown on. She left, having an appointment with me for a week from that day; but she was back within two days and wanted me to take the crown off. I asked her what was the trouble, and she said her husband did not like it, and the other members of the family did not like it, and she finally concluded she did not like it herself. I took the crown off for her, and I said: "Madam, it will cost you just \$15 for that experiment." And she said she would rather pay the \$15 than have it remain on.

I will relate an incident where I placed a gold crown on an incisor in the mouth of a patient in Brooklyn, and it is on yet. The entire labial surface of the tooth had split, although the pulp was not exposed. There was objection on the part of the patient to having the pulp destroyed, and under the circumstances I thought there was nothing else to do, and I put on a crown, and told the patient that at any time he desired to have the pulp destroyed in the tooth we could easily put a porcelain crown on it, which I thought he would like better. That was about a year and a half ago, and he has worn the palatal surface through, so that I took the crown off recently and repaired and reset it, and he seemed perfectly contented to have it go back again. I have put a number of gold crowns on bicuspids and molars when the occasion seemed to demand it, and I have every confidence in them. I have yet to set my first seamless crown, for I have always followed practically the methods that have been described by the essayist, and which I consider the best for making crowns; in fact, both for crown and bridge work. I use 22 karat gold for the band usually, and it does not seem to require any reinforcement.

The preparation of the root for the reception of the crown is quite a problem at times, and of course we all have to struggle with the bell-shaped tooth when doing bridge work, and that has become one of my greatest trials. Sometimes I have put on a crown and extended it just over the bulging surface of the tooth, provided I had on the other extremity a good solid abutment, and I have four or five such crowns with bridges in the mouths of patients and I have not had any of them come back yet. I think in many cases that method is preferable to the wholesale cutting away of teeth. When you have a large bell-shaped molar, I think at times these crowns, extending, we will say, perhaps one-half of the tooth, if there is sufficient length, with plenty of opportunity for cleanliness, up to the gum margin, it is much preferable to many crowns fitted close to the gums that I have noticed. I think the crown made in two pieces is preferable to the seamless crown, although I have not used any seamless crowns yet. I have put crowns on molars and second bicuspids, and sometimes on cuspid teeth where I considered that they would not



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be over-conspicuous, where they could be used for abutments; and I think that in many cases they give much better service than porcelain crowns.

I was much interested in the paper, and there are many points which I think we would do well to follow.

I want to say a word for the seamless crowns;

Dr. F. C. O. Walker. there has not been anything said about them tonight.

The points that have been brought out with reference to fitting bands about the necks of teeth apply just as well to seamless crowns if the tooth is shaped properly to begin with.

When you have a metal tooth to work with you can make it any shape that you like, and you can use 22 K. gold and fit it down just as close as you please at the gum.

There is another thing: After a root is prepared, you have taken your impression and the patient has gone away, you have a metal substance to work on, where there is no give or yield, and there is no danger that it will not fit afterwards, and when your crown is struck up it fits the contour, the occlusion and the neck of the tooth.

I think that Dr. Turner struck the keynote of

Dr. Ash. the whole subject when he spoke about the preparation of the roots. Of course, the majority of the

cases where we use gold crowns are on molars, and I think it is safe to say that within my observation in fully fifty per cent of the cases requiring the gold crowns the preparation of the root to receive the crown made it necessary to devitalize the tooth or kill the patient. The more frequently I perform the operation of putting on a gold crown, the more care I take to prepare the root. When I first began making gold crowns I was negligent about sufficient root preparation, but now I spend more time in the preparation of the root than I do in making the crown. I think that the secret of the whole procedure.

If you prepare a tooth so that the sides will be parallel, then the further on you put your crown the tighter it will be. There will be no difficulty after a root is properly prepared in having the band of the crown fit properly, and it need not impinge on the soft tissues at all if it is properly prepared.

The way it is done in my office is to make the band, and a flat top is sweated to that. Then with the flat top cap in place we take a bite in modeling compound, contouring the compound to make it represent just the form which the top of the finished cap should have. A piece of pure gold is then swaged to that and filled with 22 K. gold, and that is sweated to the flat top.

Some one suggested that we use a good deal of gold that way. We do, but the patient pays for the gold and gets the benefit of it.

I desire to say a word concerning incisor crowns.

Dr. Hutchinson. Dr. Jarvie spoke of the practice of putting them on, and it recalls to my mind an incident which occurred in my office several years ago. A patient, a woman, came into my office with a gold crown on a central incisor and another gold crown on the adjoining lateral, which served as an abutment for the bridge, and next to that a porcelain facing, and behind that on the first bicuspid a gold facing showing three gold crowns in the front of the mouth. I protested against it and told her I thought it was a pity that she should have a gold crown on the central incisor. She replied: "I had it put there because I wanted it." I told her that would not have made any difference to me; I would not have put it there. She rejoined: "I had it put there because I wanted it." I again told her that would not have influenced me, and she again said: "I had that put there because I wanted it." Then it began to dawn on me that she meant she wanted to have a crown there, and I said to her: "Do you mean to say that was a sound tooth and you deliberately had a gold crown put on that tooth?" She said "Yes." "And did a dentist deliberately grind off a perfectly sound central incisor and put a gold crown on just because you wanted it?" I asked, and she replied: "Yes, that is what he did." That goes to show what some men will do, and that very man is regarded by his patients and perhaps by some of his fellow practitioners as an ethical and reputable man.

For a long time I did not use any seamless crowns, but followed the method described by Dr. Sanger; but within the past six months I have been making seamless crowns by the counter die method, using a seamless copper band as a pattern, fitting it to the tooth in the mouth, which I consider the only reliable way to fit a crown; then taking the bite just as Dr. Sanger speaks of doing and making my articulation on an articulator having lateral motion similar to the Bonwill articulator. After that you can make your metal counter die on your pattern tooth and get an exact reproduction of your pattern in gold, which will fit in occlusion, contour and cervical effect, and when it is put in the mouth it goes right into place. This has the advantage of having no seam to open if you are using it as an abutment for the bridge. Up to the present time I have found no objection to that method; possibly I may later.

Dr. Sanger. I hesitated to go into all of the details of root preparation, and so on, and I find we are apt to fall into the habit of thinking things are unimportant because we are so accustomed to doing them every day that we take them as a matter of course.

The purpose of my paper was first to protest against the too common



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use of gold incisor crowns. That it is common no one will deny. That there is an outcry against self-respecting men of the dental profession because of this no one can deny; and we, as we educate the public, are being educated in turn to higher standards and more ethical work, so that in a measure my paper was intended to arouse a discussion along that line.

No one realizes more than I the difficulty of a proper preparation for the reception of the shell and the difficulties of finding proper instruments and overcoming them. It seems almost impossible to procure an instrument which will properly shape a molar tooth so that it will receive a properly shaped gold band, and because of that difficulty the two-piece crowns seem to be more readily adapted to overcome the troubles we meet in the various forms of molars. When you discuss a subject of this kind each one of you fixes in his mind a certain tooth which is to be crowned; no two of those teeth are alike, and no two present the same problem; but as a general thing, taking the matter as a whole, I think the two-piece crowns more fully meet the conditions presented than any other.

In regard to reinforcement, I have yet to see, and I question whether any of you have seen, a molar crown where the band has been buckled.

Dr. Ash.

I have seen them stretched.

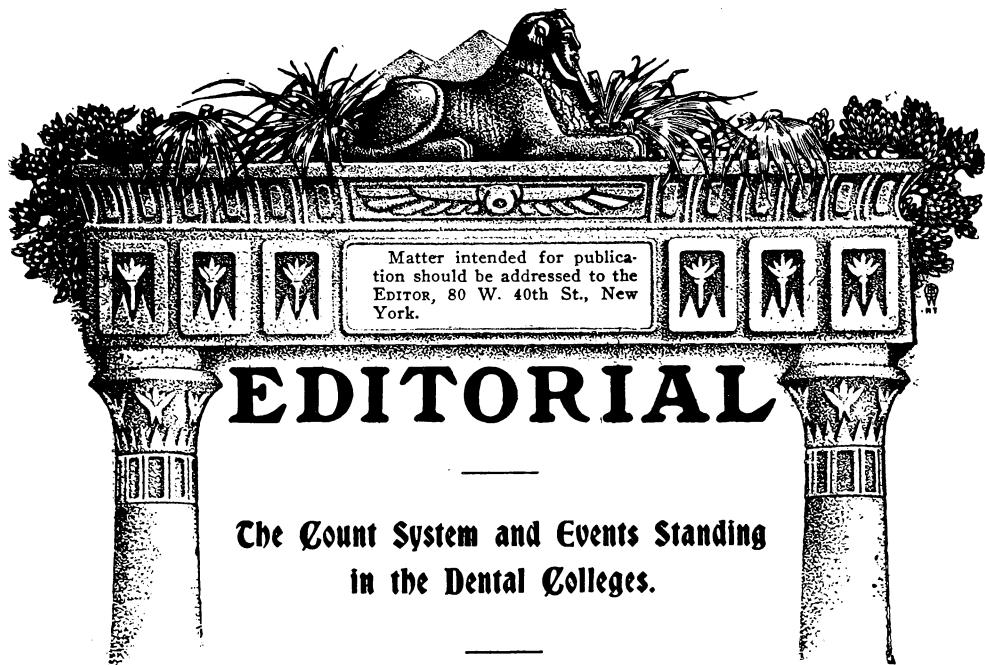
Yes, but I have never seen them crushed by a

Dr. Sanger. downward force, and according to my experience pure gold will give you all the strength ever required in a collar.

I have used in my laboratory a very good alloy which is given by Evans in his new work, which I find very satisfactory.

I fail to see where following the methods suggested by your president is of any advantage; it seems to me it is only doing the work over twice.

There is one thing I want to speak of, and that is this: Ease of doing work ought to be the last consideration; for, from my standard, nothing is good that is not perfect. Perfection is what we are all aiming for in regard to gold crowns. Dr. Grey, of Nashville, made a remark last summer which for a moment startled me. He said he would offer ten dollars to the man who could produce a seamless crown with a perfect fit; that there were lots of men who claimed to do it, but he said he had had a number of men try it, and had not found a perfect fitting seamless crown yet.



Our December editorial advocating the count system in dental colleges has attracted exceedingly important replies from deans of some of our most prominent colleges. Carefully read, these communications must convince anyone that the count system at present would be impracticable if not harmful as a factor in dental education. There seems, however, to be no good argument offered against according advanced standing to practitioners who may desire to attend college in order to obtain a more thorough knowledge of the scientific side of dentistry. Can it be possible that the faculties of our institutions of learning cannot trust one another? If this be true—



SPEAKING OF EXAMINERS, we unavoidably meet the question, "What is ♦ an Examiner?" This resursects the story of the urchins playing ♦ school. One little boy, asked to spell and define "widow," replied: ♦ "W-i-d-d-e-r, a woman wot ain't got no husband, 'cause he's dead"; ♦ which was accurate, if not classic. The next boy declared a "widderer" ♦ to be "a man wot runs after widders," which is classic, if not quite ac- ♦ curate. The same lad would probably tell us that an Examiner is "a man ♦ wot would run away from an examination." ♦ ♦ ♦

WHICH CALLS to mind that this happened once. A certain newly appointed ♦ Examining Board met, and it chanced that there were no candidates for ♦ licenses; no newly fledged collegians yearning for the dental harvest in ♦ that section. Then up rose one of the Wise-men, and thus he spake to ♦ his fellow Wise-men: "Forsooth, 'twould be a pity to waste the time we ♦ have expended preparing our sets of questions, and inasmuch as there ♦ are none others to answer them, let us answer them ourselves. See! I ♦ place them all in a hat and stir them up. Let each of us draw out a ♦ paper, and make replies to the conundrums thereon. What say ye?" ♦ ♦ ♦

AND LO, there was no answer. And the foolish Wise-man did even as he ♦ had threatened, and passing the hat to the embarrassed Other-ones, each ♦ gingerly picked out a folded paper. After the noise of opening ♦ the papers had subsided, and each sat busily perusing the queries, the ♦ silence which ensued was so dense it might have been moulded into a ♦ monument to "Misery." ♦ ♦ ♦

SUDDENLY the clicking of a watchcase was heard, and the miscreant who



had started the trouble cried out: "Boys, it's lunch time!" "Move-
adjourn-sine-die," was sounded in chorus, and the motion prevailed without division. After eating, each man inadvertently used his set of questions as a taper with which to light his post prandial cigar. And in that State they now have "no special examinations for men already in practice." You see, they have tried it, and know it will not work. ♦ ♦

♦ ♦ ♦

AS WE GLANCE around the other States we find it is not the fashion to examine an Examiner, as to his fitness to be an examiner. But these unexamined examiners not only examine those that have been taught, but they likewise feel themselves fitted to set up standards by which the teachers shall teach, and they insist upon specified preliminary educational requirements, notwithstanding the fact that many of them would not themselves measure up to the measurements by which they wish others to be measured. ♦ ♦

♦ ♦ ♦

WHEN CONSIDERING preliminary education as a veritable possession, I wonder how many dental examiners could tell us, without pause, the difference between a logarithm and a log of wood? And I wonder how many will read that twice before they catch the drift of it? Oh! There's a lot of drift wood on the shores of dentistry, and some of it floats mighty near the mills where they saw out examiners. That's why they are called "boards," I guess, and a lot of boards is often alluded to as lumber.

♦ ♦ ♦

THE ETIOLOGY of examining boards is an interesting study. My friend interrupts here to ask why I speak of these boards as though they constituted a disease, and I shirk a direct answer and simply say: "Are there not diseases on the body politic as well as on the body human?" ♦ ♦

♦ ♦ ♦

ONCE ON A TIME dentists were divided into two tribes, the members whereof were known as Ethical-fellows and Quacks. In those days the Dear Public; The Common People; the Layman and his wife, the Lay-woman; the Community, the Fool-folks, and all the rest of them, that dental statutes now protect, knew exactly the difference between the tribes; they could recognize a Quack at sight. But the Ethical Crowd did not realize how discriminating these dear people were, so they took up the task of taking care of them, and made license laws. Well, what's the result? Everybody has a license these days, and it takes a real Wise-man to separate a Quack from the other fellows. ♦ ♦

♦ ♦ ♦

SO WHAT WONDER that the Fool-folks get confused. They often go into a joint—excuse me—a parlor and get first-class work from a first-class



ITEMS OF INTEREST

¶ young man, who graduated from a first-class school, where the only joints
¶ they told him about were on the body human, those on the body dental
¶ being overlooked by the lecturers. ¶ ¶

IN ANOTHER TOWN, perhaps, the same sort of people perambulate into
¶ the den of the real science dentist, and they know his standing in a
¶ minute; that is, a minute after they meet the man, because this busy
¶ buccaneer is apt to let an ordinary patient wait half an hour or so. This
¶ affords opportunity to study the framed diplomas on the wall; to notice
¶ the neatly-piled reprints on the table, marked "take one"; and to be duly
¶ informed by the silver loving cup on the mantel, presented by admiring
¶ bibulous dental friends. For the worst result of the license law business
¶ is that the tribes have become sadly amalgamated, as it were. We have
¶ some youngsters that ought to be ethical working in the dental joints,
¶ and some oldsters that ought to be easily recognized as quacks, gulling
¶ the deluded public in dental dens. ¶ ¶

BUT IT IS ALL legal. Oh, dear, yes! We are all licensed now. Yet the
¶ real, conscientious, hard-working, true dentist must build his home in the
¶ suburbs (if he is lucky enough to own one) and commute between house
¶ and office, jostled by the dear public that the laws protect. But Pessimist
¶ though I be, I glory in the knowledge that there are men like that;
¶ true men and true dentists, and I hope there are many. But I dare not
¶ count, because you see, I don't want to be any more pessimistic than I
¶ am. I know two, anyway. ¶ ¶

BUT LET US GET BACK to the boards; let us examine the edifice con-
¶ structed of this lumber. Verily it is doubtful whether the architect who
¶ drew the original plan for this License-house, would recognize the present
¶ structure. If we could find the fellow who first thought of having ex-
¶ amining boards, he would probably tell us that according to his notion
¶ their duties were to be very simple. Just to find out if the holder of a
¶ college sheepskin knew enough real dentistry to fill teeth, so the fillings
¶ would stay in; and to pull teeth without pulling the whole jaw bone away
¶ with it. Or something like that. ¶ ¶

DOES ANY ONE imagine that the originator of the Board business ever
¶ intended that the members thereof should set themselves up as monitors
¶ over the schools? Well, if you ever meet the man, just ask him. ¶ ¶

IT IS ODD how a simple thing can grow complicated, and how difficult it is
¶ to make the complicated simple again. Any fisherman knows that. There



ITEMS OF INTEREST

is nothing simpler than a line wound on a reel. But when you cast, if you raise your finger from that reel just the fraction of a second, there's your snarl. Sometimes it takes half an hour to untangle that snarl; and then, again, on occasion, the only cure is to cut the darned thing out. Now, the line of examining boards that binds dentistry has several snarls in it. Must they be cut out?



LET US PUT IT another way. A boy is told that he may go into the next room and take a chocolate from a box. He enters that room with entire honesty of purpose—to take a chocolate. Arriving within strategic distance of said box, he faces a puzzling problem; he sees two chocolates. Query? Was he told to take "a" chocolate, or to take "the" chocolate? He would like to ask Mother, but Mother went out after giving permission. He cogitates, the while eating the first chocolate, and the result of his reflections is the conclusion that his mission was to consume "the" chocolate.



THIS MENTAL STATE of rest attained, and his mission and permission now fully comprehended, he is not at all disconcerted to discover a third chocolate under the second, and a fourth and fifth below those. The chocolates are for him. Discussion is closed.



THE CHOCOLATES GONE, he spies crystallized cherries. Now, he distinctly remembers that Mother has forbidden Sister to eat crystallized cherries; and Mother is out, and Sister is right in the next room. She might come in at any minute. She would surely see those cherries. She would eat them, and sicken; perhaps die. At all cost he must prevent such disaster as that. Now at last he discovers why his Mother sent him into that room. Well she comprehended that after eating the chocolates he would find the cherries. Wise Mamma! She knew he would understand, and that he would devour those cherries; to save Sister. So this self-sacrificing boy gorges himself with cherries. And for similar reasons he likewise eats the wrapped nugats, and even the bon bons.

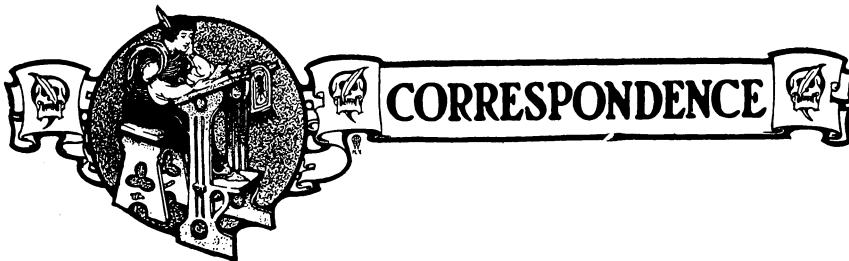


THEN MOTHER comes home; and she gives that boy oil.



THE EXAMINING BOARDS of this country are much like that boy. Men are but boys grown up anyway. They have eaten the chocolates, and devoured the cherries. There is small difference between a cherry and a plum, you know. They have not only eaten the chocolates and the cherries, but the nugats and the bon bons have likewise disappeared, and they are now busily engaged chewing the box. Will Mother come home soon?

The Pessimist.



The Count System in Dentistry.

Letter from the Dean of the University of Michigan, Dental Department.

Editor ITEMS OF INTEREST:

Dear Sir:—"Why not confer diplomas when students have completed the curriculum, regardless of time spent in acquiring it?"

This question is raised by the editor of ITEMS OF INTEREST in the December issue. He justifies the affirmation because it is logical and sensible, and further fortifies this position by the fact that Columbia University has recently announced that students will be graduated when they have secured one hundred and twenty-four counts, regardless of time. The proposition seems good at first thought, and for more reasons than are named in the editorial; but we imagine its adoption by dental colleges would be an exceedingly hazardous and probably disastrous experiment. In the first place, as applied to collegiate or academic education, the experiment has been tried over and over, and is even to-day in use in some of the largest universities in modified form. For instance, in the University of Michigan students are graduated on one hundred and thirty counts in the literary department, but no student is allowed to take more work than he can do well. This is determined by a faculty committee on election of studies. Each semester a student must elect his work and specify on his election blank the number of hours he wishes to take. The committee ascertains from each of his preceding instructors what the character of his work has been, and if it has not been of a sufficiently high order to entitle him to take a larger number of hours than is usual he is not permitted to elect the additional hours. In this way some students do actually make time—or, rather, save time—which they reapply to advanced work.

To adopt any such plan in the ordinary dental college which has no opportunities for taking advanced work is to invite trouble. From the administration side it would present serious difficulties. A considerable



increase in the teaching force would be an immediate necessity, as, where one course now covers a subject, several grades would be required and as many instructors, or the present instructors should teach more hours. In either case the expense would be correspondingly multiplied. And this, carried through the entire curriculum, would most severely test the financial ability of the larger number of our schools.

**Maintenance
of Discipline.**

In discipline another difficulty presents that would be troublesome. The ambitious student will become a trouble to his teacher in requiring advanced instruction; the persistent and presumptuous student will consume more of his instructor's time than he should; the indolent student will think he is held back for personal reasons, while others are advanced who have no better claims than he. These and many other such difficulties will be encountered in any attempt at grading students during term time, and even at the close of the year. While every teacher realizes that he has some students whom it would be a pleasure to advance and allow to work forward as fast as they are capable of doing, he also knows from experience that it is generally more satisfactory to keep his standard at what the class will carry as an average, and use special efforts to bring up the laggards, if practicable, to what the majority can do well in the time at their disposal. A reasonable pressure will bring good results, but a standard that is too high for the mass of the class will result in distinct loss or failure, because even good students will rebel when overworked.

If a student finds that he can by trickery accomplish the saving of time in acquiring his degree, a temptation to dishonorable action is placed in the way of a man that may prove to be the very thing that will lead to his disqualification later on as a true professional man. The time factor is the greatest obstacle to thorough discipline or training of useful men to be found in all callings, but it seems to us that it is wholly out of place in the training of men for the useful professions, such as medicine and dentistry. Education is recognized as a process of mental discipline; and there is no profession which calls for so complex an education as dentistry, for the reason that it has so many of the true manual training ideals to master, to say nothing of the scientific and artistic attainments which are fundamental. It can never, therefore, be given a time limit. It is not a race to be won by the student with the longest and nimblest legs, nor can it be imparted by the magician or conceived in a dream, any more than the violin can be mastered by intuition. The time limit now set by the National Board of Examiners, and which is likely to be adopted by the National Faculties Association, is none too long for the acquirement of sufficient knowledge and skill by even the brightest student, to

justify him in offering his services to the intelligent people of our day. Dentistry has made wonderful strides in the grade of service offered, during even the last ten years, and the grade of service required has correspondingly advanced, and yet there has been no equivalent increase in the time in the college curriculum.

Standards. The educational standards have been under discussion for the last three or four years, and it is believed that in the near future a great step will have been made if the present tendencies are not diverted by some makeshift proposition. In view of the legislation of the several States, the college degree no longer qualifies for practice, but only for permission to qualify before a State board of examiners. To some this argues a retrograde step for the college, but in our judgment it will prove a greater stimulus to more thorough training or preparation than anything else that could have been done. It will do much to establish a national standard of education that shall have a legal and professional rather than a commercial basis. It is the hope of examiners that schools which are not doing standard work can be detected and eliminated, if it is impracticable to standardize them. It might be possible to conduct a school on the count system that would graduate high-standard men, but the opportunity for quick results would certainly tempt students as well as instructors to prepare for examinations rather than to secure mental and manual discipline, which are of so much greater importance that there ought to be no thought of quick results in our educational problem. The comparatively few brilliant students will suffer an insignificant hardship in being held back, while the mass of students will go forth more adequately trained for their life work, which is worthy of the highest order of culture and training.

N. S. HOFF,

Dean of the University of Michigan, Dental Dept., Ann Arbor, Mich.

The Question of Fees.

Editor ITEMS OF INTEREST:

Dear Sir:—I notice in your October publication a paper which was presented before the Colorado State Dental Association last June by Dr. L. K. Fullerton. Although a very able paper, I would like to rectify a misconception on the part of the essayist in discussing the question of fees, if you will allow me a little space in your valuable journal.

While I agree with Dr. Fullerton that the dental practitioner who does not consider his responsibility and position, and has no higher



regard for his ability than to measure his earning capacity by the day or by the hour, should not be classed as a professional gentleman, and I am very glad indeed to hear Dr. Fullerton take up this fee question with such resoluteness, I think we should all exert ourselves a little to remedy this one important feature of the dental profession, not for the purpose of extorting exorbitant prices from the public but to get our just reward. There are often poor people who call on the dentist for treatment who cannot afford to pay high fees for professional service. The dentist should in these cases use his judgment; if they are worthy of treatment, he should treat them with as much care as his other patients, regardless of what they will pay him. But there is no excuse for a professional man to hang out a big sign, "Crowns \$5.00, Gold Fillings \$1.00," or for a dentist to adopt these prices without the sign. The former is an educated fool; the latter is a coward. A dentist at those prices cannot render true professional service.

But, coming back to Dr. Fullerton's paper, he handles this would-be professional dental practitioner without gloves, and says he belongs to the tin-pail brigade and should be placed at the rear of a \$1.10 per day payroll with the section hand on a narrow-gauge railroad. I think this condemnation is not too severe, but he goes on and states that he believes the present conditions are partially brought about by the fact that the majority of the practitioners of today are not educated men. He says: "How many of last year's graduates have previously received a diploma from any other institutions of learning?" As I happen to be one of those last year's graduates, I would like to ask the doctor how many graduates of fifteen years ago had diplomas from other institutions of learning, or when the requirements for graduation were two years, with only a six months' term for each year. I do not wish to be personal, as I have no idea when Dr. Fullerton graduated; but some of these men, after practising twelve or fourteen years should go back to college and get the training we got; then they might be able to construct a crown for which they could demand more money without affecting their conscience.

Dr. Fullerton alludes to the successful dentist **The Gentleman in Dentistry.** of the future, and says he must be an educated and polished gentleman. He certainly should be a gentleman, but who are some of these educated, polished gentlemen in our profession today? You will find some of them with offices in our downtown buildings with big signs—letters of red, or some other bright color so that they may be distinguished at a mile's distance—which read: "Crowns \$5.00, Gold Fillings \$1.00." Some of these would-be practitioners could hardly construct a crown or insert a cement filling that would pass, but they employ students or non-graduates, while in their

laboratories you will find boys. Quacks are generally more venturesome than skillful. It is not always the smooth, polished and educated gentlemen who turn out to be quacks, but it is always the man without principle, be he educated or not. There is no assurance that a man with two or three diplomas has principle, and he may also be devoid of common sense. Yet a thorough education is desirable for the dental practitioner of today. It is not the most important to a practical dentist. A practical dentist must have some mechanical ability, without which he cannot be successful from a true professional point of view, as the dental practice of today combines nearly all the trades, sciences and arts which no man could master. But with mechanical ability he is able to become skillful in the different methods and arts applicable, while the polished gentleman who has all education and nothing else will be successful in a financial way but not as a true practitioner. Some practitioners may not know how to mix plaster, nor care to know, yet may be successful financially by having only one aim—get the almighty dollar, at the expense of the ignorant public and his fellow practitioners—or by employing students and whatever riff-raff he can find to run an advertising parlor at bargain-counter prices.

Selfishness is the one great weakness of human nature, and it may be found in the hearts of the professional and educated gentleman as well as in the poor and ignorant. If Dr. Fullerton would have analyzed this little word and traced its causes and origin he would not have found it necessary to consider the new graduate in this fee question. As some of the older members who have been in practice a number of years have had ample time to devise and invent ways to do work quickly, and incidentally to underbid his neighbor's contracts; the new graduate, being slow, must necessarily get a good price for his work or he could not exist. There are usually also long intervals between patients, so he has plenty of time to do his work well and demand a good price.

The dental societies of most States, I notice, are taking up this fee question, and with just cause. I think when more of the older members will interest themselves in this discussion some good may be accomplished. In the past it seems to have been considered unethical, especially by some members, to discuss the question of fees at society meetings, but of late this idea seems to have given way to more common sense. It is well, because we cannot live on ethics alone.

Yours truly,

DR. W. C. APPEL,
Chicago, Ill.



Information Wanted.

Editor ITEMS OF INTEREST:

Dear Sir:—We have a novel case here in Vermont. A man graduating from a reputable dental college comes before the State Board for a license. He fails each time on his mechanical and operative work—all right on theory. He goes to practicing without his license, is fined, pays his fine and then goes to Fort Ethan Allen, the U. S. Army reservation in Vermont and begins practicing dentistry, supposedly, of course, with the permission of the commanding officer at the Fort.

Now as Vermont has ceded all rights, civil and otherwise, over the tract of land occupied by the reservation, can the dental law touch this man?

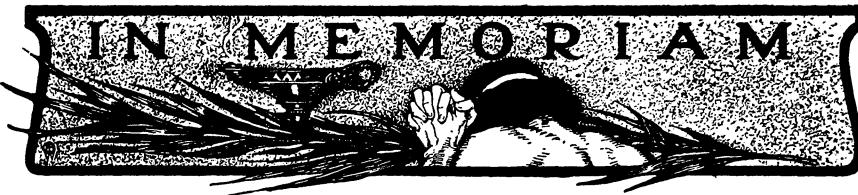
Another case is that of a man who began as an assistant about fourteen or fifteen years ago and has remained in the same city but not always in the same office, has never been up before the State Board, still practices dentistry in all its branches; claims as he does not work for himself, does not rent office, nor hang out a sign that he is not practicing and defies anything being done about it; says the man he works for is responsible for anything he does and he is not.

Our law does not require a man to have his license hanging before his chair, but does say that "any person practicing dentistry without a license shall be fined not less than \$25.00 and not more than \$100.00."

We would like the opinion of the ITEMS and your readers on these cases.

J. ARTHUR ROBINSON,
Prosecuting Officer,
Morrisville, Vt.





Dr. Charles C. Chittenden.

In respect to the memory of Dr. Charles C. Chittenden, the Odontological Society of Madison adopted the following resolutions on December 16:

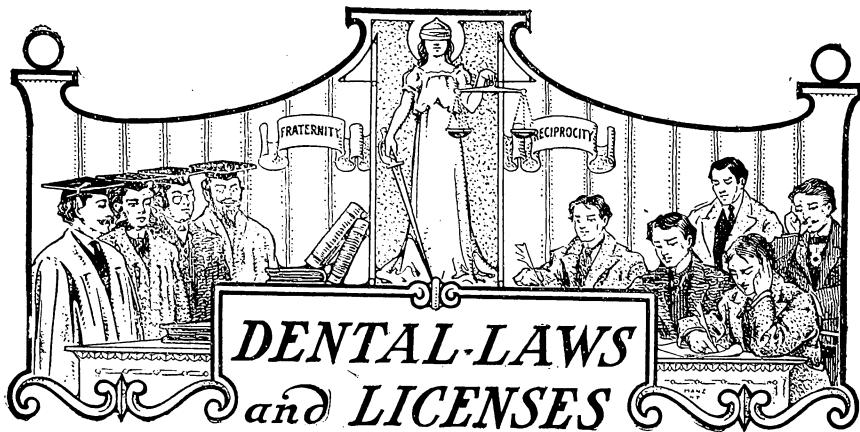
Whereas, The hand of Providence has removed from us our honored member and president, Dr. Charles C. Chittenden; and

Whereas, In his decease we have lost one of the founders of our association, who as president and as an active member until his death evinced a warm interest in its welfare. As president of the National Dental Association, president of the National Association of Dental Examiners and also president of the State Board of Dental Examiners for many years, he gave freely of his time and energy, sacrificing his health for the advancement and betterment of dental education, and who in many years of practice set before us a worthy example of fidelity to his patients and kindly interest in his younger professional brethren; therefore, be it

Resolved, That we desire to express to his bereaved family our sympathy and sorrow in their affliction and our admiration for the professional and personal qualities of our member; and

Resolved, That these resolutions be spread upon the records of our association, a copy sent the family of our departed brother, and others to the dental journals for publication.

W. H. MUELLER,
O. C. SCHMEDEMAN,
F. T. McCONNELL,
Committee.



Interchange of License.

By Dr. CHARLES S. STOCKTON, Newark, N. J.

It seems almost impossible to get the dentists to understand what is meant by the Interchange resolution, known as the Asheville Resolution.

Even my good friend, Dr. Mitchell, of Boston, seems to have utterly misunderstood it when he at the last meeting of the National Board of Examiners, and in my absence on account of severe illness, made a motion to expunge the resolution, and in speaking to the motion said that the "dental parlor men" stay in a place a short time and then go somewhere else and come up for interchange. It is perfectly absurd for anyone to make such a statement as this, especially Dr. Mitchell.

Then, too, Dr. Hoffman, of Denver, in a recent communication, says that dentists flock to that State on account of health and other causes, do as little work as possible, get all the money they can, and leave.

Both of these gentlemen fail utterly to comprehend the resolution of interchange. It distinctly states that the applicant must be a man of good character, a qualified dentist, must have been in practice for five continuous years in one place, and a member of the State society. He must be all of these before he can apply for a certificate, and if he is then well recommended the certificate is granted by his home board, and *that* he takes to the State and place in which he desires to practice. This, I claim, is equivalent to any examination, or should be, that the State Board of Massachusetts or Colorado should require, and is a full guaranty that the bearer is the peer of any one on the examining board.



Let Dr. Mitchell start on a journey around the world and obtain a letter of credit from J. P. Morgan & Co., and anywhere on that journey he can enter any banking house and obtain money. Why? Because any banker in the world knows that Dr. Mitchell has deposited with Morgan & Co. the cash or its equivalent in order to obtain this letter of credit. Similarly any man with a certificate from his home board should be received by any other board if necessary, because the bearer has deposited in full all necessary knowledge to obtain it. This is what the Stockton Resolution of Interchange of licenses means, no more, no less; and it is the honest and right solution of this question, and any examining board in the land should extend the hand of fellowship to one bearing such a certificate.

If for any cause Dr. Mitchell or Dr. Hoffman should desire to come to New Jersey to practice, with such a certificate, they will be welcomed with open arms. In fact, it would be an insult to either of these gentlemen to ask them to demonstrate their ability, and if I should go to Boston or Denver to practice I should expect and demand a like courtesy. Laws are all right, but they are meant, or should be, to protect the public from incompetency, and not to prevent Dr. Mitchell or myself from practising anywhere regardless of State boundaries.

It is true that there may be but a few who will desire to avail themselves of the opportunity of using the interchange; but, however few, it is their right. Give it to them. Let us do unto others as we would have them do unto us.

Since writing the above I notice the severe criticism of Dr. A. W. Sweeny on the amendments of the Asheville Resolution.

The first one—that the applicant must have practiced continuously at least five years in one place—was reported by a committee on the codification of the laws—Dr. Smith, chairman. It was presumed the committee carefully considered this before reporting it, and I gladly accepted it. It takes an ordinary man about that time to establish himself and show success, the only evidence of ability. His moral character and worth also become established in that time, and the members of the examining board are then fully aware of his qualifications morally and professionally. That he shall be a member of a society is also a qualification in the right direction, for a man is soon sized up by his fellow practitioners, and here in the society he is judged by his worth, and again the members of the examining board have an opportunity to judge his qualifications should he apply for an interchange certificate. I think both the amendments only help the more securely to guard the fact that no man shall ever receive the interchange certificate under the Asheville resolution unless he is in every respect worthy to have it.

Dental License Laws Advantageous.

By F. F. DREW, D.D.S., Baltimore, Md.

I have read with a great deal of interest the article contributed by Dr. A. W. Sweeney, of Baltimore, in the current number of *ITEMS OF INTEREST*, entitled "The Rule of the Minority," and while I heartily endorse the general character of the paper I desire to take issue with him regarding certain statements, which I think should not pass unchallenged, as he is a resident of this State and his remarks might be construed as applying to Maryland.

Having had the honor to be a member of the Maryland dental examining board for nearly eight years, I feel that I am in a position to speak from experience, and that experience has taught me that dental laws when properly applied are the greatest blessings the general public and dentistry have ever enjoyed.

Examining boards are by no means so unpopular or undesirable as Dr. Sweeney would have us believe, and the public and the profession—by which I mean the better element—are pretty well agreed that they are absolutely necessary.

These act as stimulants to the Faculties who realize they must properly train their students to pass the State examination, failure in which would be a reflection upon the college.

Another point in favor of the State examination is the elimination of favoritism. College faculties are connected with their students more or less for a period of three years, and in that time are apt to form attachments which may influence them in their final judgment. Such a state of affairs could not prevail with the examining board, as candidates and their past records are unknown and each one is judged by merit alone.

**Favoritism
in College.** As illustrating how far favoritism in connection with a dental graduate might be carried I will relate an incident which came under my personal observation a few years ago. A member of the faculty of a

prominent dental school called upon me a short time prior to the regular examination, and stated that they had just graduated a man, well advanced in years, who knew very little about dentistry and who proposed to take the State examination. He asked that the board be easy on him—that the man, owing to his advanced age, could not live long and consequently could not do much harm. The professor was very promptly informed that if the man took the examination he would have to make

the same showing as the rest of the candidates, and that his advanced years would not be taken as an excuse for ignorance. It is hardly necessary to say the candidate failed to put in an appearance on examination day.

That there has been a marked improvement in the attainments of dental graduates since the advent of dental laws, owing to increased requirements, no one will deny, and that improvement naturally accrues to the benefit of the general public, consequently dental laws *per se* are desirable.

**Examiners
Should be High Class
Men.** Examining boards should represent the highest type of the profession. They should be composed of broad-minded ethical men whose dental attainments are unquestionable and whose standing in the community is recognized. To eliminate politics as far as

possible their nomination should be made by the State society and their appointment by the Executive of the State. The State society should be very careful to see that proper men are nominated, and with a board so constituted I think the interests of dental graduates and the public at large will always be safe.

Reciprocity. If each State in the Union would embody in its dental statutes a discretionary clause giving the board the authority to waive the examination of a graduate (as is the case in Maryland) reciprocity would soon be an accomplished fact. It has been a great help to us in disposing of the cases of men of undoubted ability and long practice from other States, who desire to locate in Maryland, and we have always recognized the wisdom of such procedure when in our judgment the applicant is entitled to the courtesy. To my own knowledge the privilege has been availed of twenty times.

With all the boards similarly equipped and broad-minded, reciprocity would be easy without the iron-clad agreement provided by the "Asheville resolution."

Dr. Sweeney's charge, therefore, against the "narrow sectional features of dental laws" will not hold good in Maryland.

With the exception of the foregoing criticisms I have nothing but praise for the doctor's paper, and I trust his efforts may be followed by good results.



SOCIETY ANNOUNCEMENTS

National Society Meetings.

National Dental Association, Atlanta, Ga., Sept. 18, 1906.

State Society Meetings.

Connecticut State Dental Association, Bridgeport, April 17-18, 1906.

Illinois State Dental Society, Springfield, May 8-11, 1906.

Minnesota State Dental Association, June 11, 12, 13.

Montana State Dental Society, February 23, 24, 1906.

New Hampshire Dental Society, Plymouth, May 8-9.

Tennessee State Dental Association, Nashville, May 15-17.

Vermont State Dental Society, Brattleboro, May 15, 1906.

American Dental Society of Europe.

The next meeting of the American Dental Society of Europe will be held at Berlin, Germany, the 1st, 2d, 3d and 4th of August, 1906. A most cordial invitation is extended to members of the profession to be present.

An interesting programme is already assured, and it is hoped to make this one of the most interesting and largely attended meetings in the history of the Society.

GEO. O. WEBSTER,

Honorable Secretary,

Pariser Platz, I., Berlin, Germany.

Barnes University Dental College.

On account of the refusal and alleged financial inability of the Board of Trustees of Barnes University, St. Louis, to furnish the Dental Department of that institution with demonstrators necessitated by the requirements of the Missouri State Board of Dental Examiners and the National Association of Dental Examiners, and with the apparatus and equipment necessary for the proper and legal teaching of dentistry (such as electric current, nitrous-oxide gas apparatus, etc.), Drs. B. L. Thorpe (Dean), D. O. M. Le Cron (Vice-Dean), Richard Summa, Val. H. Frederichs, W. F. A. Schultz, C. O. Simpson (Secretary), E. E. Haverstick, E. P. Dameron and W. Y. Eckhart, of the Dental Faculty, resigned December 16, the resignation taking effect December 23, 1905.

The Odontotechnique Society of New Jersey.

The Odontotechnique Society of New Jersey, a society formed about a year ago, has recently been incorporated at Trenton.

The regular meetings of this society are held on the first Saturday evening of each month, at 842 Broad street, Newark, N. J.

Officers for the present year are: President, Dr. R. B. Van Gieson; Vice-President, Dr. Theo. R. Harvey; Secretary, Dr. J. P. Knef; Treasurer, Dr. J. S. Voeghtlen. Secretary's address: 238 Ferry street, Newark, N. J.

The G. V. Black Club Clinic.

The G. V. Black Dental Club of St. Paul will hold its annual mid-winter clinic at the old Capitol Building in St. Paul on February 22 and 23, 1906. An unusually interesting programme is being arranged by the Programme Committee. There will be all classes and kinds of dental operations, such as gold and amalgam fillings, porcelain and gold inlays, gold and porcelain crowns.

Such well-known men as Drs. Searl, Clack, Beemer, Lewis, Moyer, Wells, Bond, James, Gallagher, Richardson, Conzett, Robinson, Pherrin, Crandal, Work and others will operate.

Dr. Truman W. Brophy, of Chicago, will make a surgical operation. Essays will be read by Drs. G. V. Black, C. N. Johnson and T. W. Brophy, of Chicago; Alfred Owre, of Minneapolis, Minn., and Conzett, of Dubuque, Iowa.



There will be a number of table clinics of more than ordinary interest. Special attention has been given the exhibits.

Railroad rates, one and one-third fare, plus 25 cents, certificate plan.

The profession generally is invited to attend. For further information apply to

R. B. WILSON, Secretary,
107 E. 6th St., St. Paul, Minn.

Massachusetts Board of Registration in Dentistry.

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston, Mass., March 7, 8 and 9, 1906.

All applications, together with the fee of twenty dollars, if first examination, must be filed with the Secretary of the Board on or before February 28, as no application for this meeting will be received after that date.

Hereafter candidates for second and subsequent examinations will be required to fill out an application blank and forward it to the Secretary as above.

Every candidate for examination must be twenty-one years of age.

Application blanks may be obtained from the Secretary.

Temporary licenses are never granted.

The fee for third and subsequent examinations is five dollars.

G. E. MITCHELL, D.D.S.,
Secretary.

Southern Dental Society of the State of New Jersey.

The next meeting of the Southern Dental Society of the State of New Jersey will be held February 21, 1906. Dr. R. Ottolengui, of New York City, will be the essayist of the evening. Subject, "The Treatment of Putrescent Root Canals."

DR. WM. H. GELSTON, Secretary,
Camden, N. J.